

SCIENCE FICTION AGE



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& Other TV News

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The Invisible Woman

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GENTRY LEE
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COVER: *The last spaceship escapes a dying world. Art by Chris Moore.*

ABOVE: *Odo (Brenda Auberjonois) and Quark (Armin Shimerman) contemplate the Fall Sci-Fi TV season. For more TV news, see page 28.*

SCIENCE FICTION AGE

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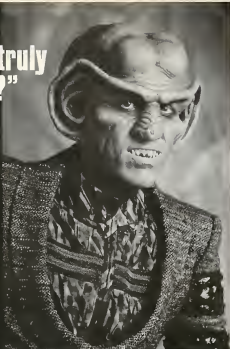
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 1994 The 10th anniversary of Star Trek: The Motion Picture
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There's now an even better reason for a manned mission to Mars.

I HAD INTENDED THIS ISSUE TO SPEAK TO you about politics. Election season fast approaches. As I write these words, the Republican and Reform party conventions are both in the news, and there are useful points to be made about where we have come from and where we are going in the political structure of this nation, and this planet as well. But I'm afraid I will have to leave that debate to the able minds of our Science Forum participants this issue, who wrangle with just that topic.

Because suddenly, an event has occurred which has caused the importance of petty politics to diminish. For the past few days, the news has been filled with reports of the discovery of life on Mars. Examination of a meteorite, one of twelve found on Earth over the years that have been determined to come from Mars, has found traces of past life. And suddenly the universe seems smaller.

The discovery made front page news in *The New York Times* and *The Washington Post*, was the lead story on many of the national evening news programs, and was even the subject of a presidential press conference. And rightly so. Because NASA has answered one of the basic philosophical questions that people have been asking themselves for as long as people have existed and gazed up at the stars:

Are we alone in the universe?

Until this announcement, the answer to that question has always been, "There's no way to tell, but we sure hope not." Now, at last, we can say with a deep sigh of relief, "No. We are not alone."

It does not matter that the life that has been discovered is microscopic in nature, invisible to the naked eye. Nor does it diminish the importance of the news that what we have found is a fossil form over three billion years dead. Even if we had co-existed in time, these were not creatures whom we could have communed with, discussing our joint roles in the universe. But still, the news is stunning, the sort of news that changes the way we think.

People are always throwing about that this or that event is the most important of the century. The O.J. Simpson trial, for example, was called by many, "the trial of the century," to which I always responded, "What about the Nuremberg War Crimes trials? What about the Scopes trial? What about Sacco and Vanzetti? Or the Lindbergh baby kidnapping trial? Or the Rosenbergs?" The news media often exaggerates to get your atten-

tion. But about this news there can be no exaggeration. Being able to hold in one's mind the proof that we are not alone in the universe, that life was as close as the planet next door, is truly the news of the century, if not the millennium, perhaps more important than harnessing electricity, or the invention of the automobile.

For we are no longer hoping. We are no longer living in a state of perpetual desire, longing to know that there is more than just us. It is a comfortable place, this planet, with all the things we need for a peaceful and fruitful life, but it is not enough. It can get awfully lonely in the universe. We are no longer knocking at the door, waiting for an answer that may never come. We can now be certain that at least one other world contained life. Extraterrestrial life is no longer just a theory. It is a fact. And having discovered life this once, who can deny that it will be elsewhere, in other forms, at other times?

One astronomer, being interviewed on the evening news, said that while he was not entirely convinced that NASA was 100% correct in its interpretation of the evidence, he knew of only one way to be sure: The human race had to go to Mars.

We agree. But then, if you've been reading our pages for long, you'd know that. There is a universe out there, waiting for us. We should do more than cover beneath our protective atmosphere, and curse the darkness that waits without. It is should be considered our duty to visit our neighbors. The world is bigger than our front porch of a planet. We should get out more.

There is a side issue, too, one of less importance to those at large, but certainly important to the world of us who gather here.

The same way that the success of the space program lifted all of science fiction with it, transforming us from perceived wild-eyed lunatics into visionaries, so has this find legitimized in some way our interest in bug-eyed monsters and marauding Martians. As each piece of science fiction takes it place upon the stage of science fact, those who are not SF fans received further evidence that we are indeed living in a *Science Fiction Age*. Putting a man on the moon became more than a dream of readers of pulp magazines, and now so has the discovery of alien life. It isn't exactly the first contact for which we all hoped, but it will serve for a start.

Who knows what other dreams will soon be fulfilled?

Scott Edelman

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Dear Mr. Edelman:

Thank you for bringing us "Farthest Horizons" by Geoffrey A. Landis. It's been many years — no, decades — since I've found a story so moving. It takes us to a beautifully exotic setting, illuminates some of the more poignant facets of human nature, and does so with the suspension of disbelief only possible in Hard SF. This is a rare find in what has become a genre of *Star Wars/Star Trek* clones.

I would explore Landis' work further, but he isn't mentioned in your contributors section. Maybe he is a regular contributor and I should be embarrassed. No more will I pick up a copy of *Science Fiction Age* once a year or so. I'll snatch every issue.

Highest Regards,
Keith A. Ward

Dear Mr. Edelman,

This is the first time I've ever written to a magazine about a story I've read in it. (I've been tempted, but the opportunity hasn't been so easy — I love e-mail.)

I just finished reading "The Compassionate Smothering-Death of the Universe" by Kandis Elliot. I found it quite engaging, and I felt compelled to tell somebody (in this case you) about it. The story kept me wondering how it was going to end right up to the end.

Every time I put down the story (I usually only have about fifteen minutes at a stretch to read), I would think about it until I was able to read again. I'm still thinking about it, re-living the experience in my mind.

The character, Regal Ket, was deliciously three-dimensional. And in some little way, I actually was "happy" with what happened to her in the end. I liked the Haliens. If I was to reincarnate as another life form, I'd want to reincarnate as a Halian. It's nice to see the "nice guy" win. I'll definitely remember this story for awhile.

I'm in my second year of subscribing to *Science Fiction Age* and I'm really enjoying it. I find your editorials fun and informative — and I rarely read editorials. And although I can't say I like everything I read between the pages of *SFA*, when I do, I really do.

Thanks for publishing this wonderful story!
Carma Spence

Dear Scott:

I read with interest the conversation between Arlan Andrews and Geoffrey Landis about global warming. It's good to see some serious discussion of the subject taking place. I note with dismay, however, that the idea of deliberately altering Earth's climate

arises. This would be an extremely dangerous thing to try!

Earth, as a system, is exceedingly complex, as Mr. Landis points out. Taking the land, oceans, and atmosphere all together and considering outside effects (primarily the Sun) must involve a *huge* number of variables. In addition, the equations governing the system (only a few of which I am aware of) are highly non-linear (or "chaotic" in modern jargon). The upshot of all this is that anything we do to the system, any variable we try to alter, will change many or all of the other variables in very unpredictable and possibly drastic ways! These kinds of equations often have what are called meta-stable states wherein a seemingly minor alteration to the variables leads to destabilization of the whole system. An example of this would be the "runaway greenhouse effect." In this case, the new stable state of the Earth would supposedly be something similar to Venus! And since we only have one Earth, there's no way we can perform experiments . . .

John Chappelow

Greetings:

I enjoyed the Catherine Asaro/Geoffrey Landis article in the September issue.

Question:

Given the parameters of real science, why do you still print "spaceships" on the cover that have little relationship to reality? Space considerations, stress factors, etc., make a globe one of the better choices for the true spaceship. Yet, we get all these structural objects that would be fuel hogs to change in direction of flight.

C. Henry Dewey

If we make the assumption (as many scientists do) that the starships of the future will be built to outer space rather than on the surface of Earth, and will never need to meet a planetary atmosphere, many of the issues you raise will be moot.

And even if this proves not to be the case, we can still dream, can't we?

Dear Editor:

I've noticed for a long time that you have very few women writing for *Science Fiction Age*. On your contributors list, I recently counted only about five women out of twenty-seven people total. You really need to seek out more female authors. There is a whole different tone to stories that women write (and I don't mean that they're all soft, sweet fantasy stories), and I could tell from the beginning that most of the writers for this magazine are men. Please don't neglect the

good SF out there that is being written by women, in favor of the same group of men you've been publishing for several years now.

Aside from that, I love the variety of information that you provide to readers, including the background about upcoming movies and books.

One last question. Why do you break your stories up throughout the magazine? It's not like we're not going to read it from cover to cover anyway! Please keep the stories intact, however you scatter them between science articles and new products, and rest assured that we read every bit of the publication—you don't need to tease us through to the end of the magazine.

Tracy L. Zellich

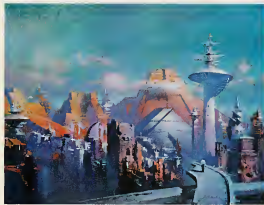
To answer your first and more serious question first, we have always hunted for the finest SF from both genders. That's how we've managed to publish the writing of Martha Soukup, Jo Clayton, Kandis Elliot, Jane Yolen, Connie Hirsch, Kathleen Ann Gorman, Resa Nelson, Elizabeth Moon and many others. We encourage writers of all race and sexes to submit their work to us, because we're always looking for only the best.

You might find interesting the fact that in thinking about this issue, I kept track of the ratio of submissions to this magazine by men and women for a period of three months, and compared that ratio to how they were actually represented in our pages. The difference between the two was never more than a percentage point or two in any given month, which tells me that the job of getting more women writers into this or any magazine begins with the writers themselves. More of them must submit, because the numbers tell me that we're treating all writers equally, based only upon the words on the page.

As for your second question, about the layout and design of the magazine, we are happy at the mercy of the market forces that have made us successful. Because we must take into account advertising and the placement of color pages the way most non-genre magazines do, assembling each issue can at times resemble finishing a complex jigsaw puzzle. Other SF magazines, with minimal advertising and no interior color, do not have to contend with this issue.

Readers—please let us know how we're doing at *Letters to the Editor*, *Science Fiction Age*, P.O. Box 360, Damascus, MD 20872, or e-mail to S.Edelman1@Genie.Geis.Com, or use CompuServe address: 102746,3004

Pay a visit to *The Other End of Time* with SF Grandmaster Frederik Pohl.



Once the aliens pay a visit to the world of tomorrow, nothing will be the same. Cover art from *The Other End of Time*.

EVER SINCE H. G. WELLS BROUGHT MARTIANS trampling through Victorian England, the alien invasion tale has been a genre mainstay. All the way through the first years of the Cold War it was, with a few notable exceptions, taken as given that the aliens — whoever they were or wherever they were from — would try to take Earth away from us when they arrived. Territorial avarice à la Hitler's quest for *Lebensraum* was fresh in our memories. Of course the technologically superior would take from the technologically weaker.

But the other lesson of the aftermath — exemplified by the Berlin Airlift — started working its way into cogent reconsiderations of the problem. The stories started questioning the imperial premise, asking if it were more likely that the aliens would have nobler motives. Invaders from space became more benign or disappeared altogether, until, finally, we became the invaders, going out into space to seek and subdue.

Still, the field keeps coming back to the subject. It's just too rich a vein to give up. The focus has changed, through, because SF, like science, relentlessly over time questions assumptions. We still see alien invasion novels, but now one of the chief pleasures is the investigation of the motive. If, against all our more rational expectations, the aliens do invade, what will be their reasons?

Frederik Pohl delivers a decidedly unexpected answer in *The Other End of Time* (Tor Books, hardcover, 384 pages, \$23.95).

In a rather bleak near future — runaway inflation, constant threat of terrorism, loss of any visible space program — Jim Dan Dannerman works for the National Bureau of Investigation as a counter-terrorist. As the novel opens, he is in the last phase of a mission when a message from space arrives. It is the first unambiguous evidence that the aliens are "Out There. Unfortunately, except for the likenesses of several species — quickly dubbed by popular culture the Seven Dwarves — and a puzzling representation that may be a depiction of the Big Bang and the Big Crunch, the message is indecipherable.

Dannerman has little reason to expect the message to impact him directly. But upon conclusion of his European job he is reassigned to investigate his cousin, Dr. Pat Adcock, who runs a private astronomical observatory and research firm.

The company owns its own orbital platform. However, the *Starlab* has been inoperative, for unknown reasons, for some time. Now, Pat Adcock is putting together a repair mission. The NBI wants to know why. Dr. Adcock is cashing in a great deal of her personal fortune to grease the bureaucratic treads and fund the project and she has brought together a team of people the NBI finds questionable. It is arranged that Dannerman become her bodyguard, and he soon finds himself launching from the quasi independent nation-state of Florida into space.

At this point, Pohl steps off the well-trod path of alien invasion scenarios and onto the slippery grounds of Cosmology and Theology. He does so with deceptive ease, and only after we are well along do the ramifications of what he is doing begin to ricochet around in the mind.

The aliens have taken over *Starlab* and they kidnap the humans upon arrival. Dannerman and his companions wake up perhaps thousands of light years away, enclosed by mirrored walls in a hexagonal space. In time they learn that they were transmitted via a kind of teleportation device that makes copies of a blueprint taken from the original. "They" never left *Starlab*, only a pattern of themselves, from which a new set of "Them" has been produced. What they see in the mirrored walls are second

generation copies. Pohl elegantly plays this minor chord throughout the novel. Because none of these humans are who they originally seemed to be, they have lied to each other, misrepresented their intentions, and, now, as copies, must learn levels of trust already violated. The aliens themselves are not "originals" but copies from master templates. This fact does not seem to trouble the aliens, who cannot understand why it should bother anyone to no longer be unique.

Upon this turns one of the chief fears of the invasion. As distressing as physical invasion is, with the loss of territory and wealth, it is the psycho-



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and the dead return.
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logical consequences which are most disturbing. Namely, loss of identity. Personal, cultural, racial. When Rome destroyed Carthage, they not only slaughtered the males and carted the women off as slaves, but burned the city to the ground and salted the ground to make it unusable for any future generations. Carthage became a place known primarily through Roman history, leaving virtually nothing of itself behind. Many of the ethnic conflicts of the present start from this sense of lost identity, a desire to reclaim something which, because of invasion, may be permanently lost.

Layer by layer Pohl strips his characters of the convenient safety nets of personal identity. They retain a strong sense of who they are, but it is compromised. It is at this point that he reveals the reasons behind the invasion.

Their captors are merely servants to a race they call the Beloved Leaders, who are in turn at war with a race called the Horch. The Beloved Leaders wish to enlist Earth in the conflict, but they make it clear that they probably won't take no for an answer. The Horch, we are told, are viciously attacking and destroying any sentient race with which they come into contact. Why?

The answer to that has to do with Teilhard de Chardin's Omega Point, the nature of the universe, and the ultimate status of all intelligent life. While struggling for advantage to gain their freedom, Dannerman, Adcock, and their companions are forced, individually and

collectively, to come to terms with final judgments, good and evil, and what they believe reality is waiting for them at the end of time.

Pohl writes a cozy, intimate prose, almost like someone we haven't seen for a few years showing up to sit in our living room and over coffee tell us what's been happening. Somehow, in this matter-of-fact approach, he gets across the vastness of his cosmological musings.

And he leaves you thinking. If the major strength of science fiction is indeed an exploration of What If propositions, *The Other End of Time* provides amply. Even after the last page is read, we are left mulling over the questions he asks and, like the best of any literature, they are not all comfortable questions. Some of them are outright disturbing.

Holy Fire by Bruce Sterling, Bantam Spectra, hardcover, 304 pages, \$22.95.

Here are a couple of worries people have about modern science fiction:

It is difficult to paint on a broad, imaginative, speculative canvas and at the same time do the close-up work that makes fiction nuanced and mature.



Science fiction, thrilling in its awkward youth, is less so as it matures into the commonplace, becomes just another set of action-movie tropes or series of indistinguishable series.

There's not much to be done about getting older. And what if you want it both ways?

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finds herself unaccountably moved by the overheard squabble of a young couple. Suddenly she misses the overlooked possibilities of her youth.

Mia selects an extreme new life extension treatment. It regrows much of her body fresh, and adds brain tissue to replace what has dwindled over decades. It is a way for a gerontocrat to toss all her chips for change or oblivion, nearly a suicide plan. Out the other end comes a hell-with-it adolescent who names herself Maya. Maya makes a break for it from Mia's stifled life, ripping off medical monitors and running to Europe.

Here Sterling finesses that first problem. *Holy Fire* is both an exploration of a future history, and of the second adolescence and identity paradoxes of Maya, because one mirrors the other. Maya is fractured, dissociated, in conflict with herself: the old Mia, and a fervent "youth" of hormones and curiosity, coexist uneasily. She has inverted within herself the balance of her world, where "grownups" like her old self dominate, while "kids" of twenty and forty live "vivid" lives with little hope of economic or social power, waiting for their elders to finally die off.

It's a vivid tour of this future: gorgeous and transmuted cities (Stuttgart is edible), plenty of eyeball kicks: "It was a very smart wig. This wig could have leapt from her scalp like a supersonic octopus and flung its piercing tendrils right through a plaster wall. But it was the tool of a major couture house, so it

would never do anything half so gauche. It was merely a staggeringly pretty wig... a wig as expensive, as cozy, and as well designed as a limousine."

Maya is a perfect reader surrogate for the tour. Neurological trauma, her drive for escape, and a kind of unconscious modeling of her new self on her image of a vivid kid, has created in her a condition of "perfect confidence and happiness." That this confidence and happiness is something of a pathology, a side-effect of brain injury (Sterling has no patience with SF writers who treat identity as something apart from the brain, something that can be downloaded into computers or boosted with brain surgery with no particular change to one's personhood), doesn't make it any less attractive to young men or impressive to young women. Grownups find her cute.

Eager to experience everything new, she's a great listener. This makes her attractive to men who want to sleep with her. It also allows Sterling, who has always loved a good argument, to make doxers of opposing ones, as Maya looks for her new self in the young firebrands she meets: Ulrich the outlaw; Therese the pragmatist; Emil the artist, also the beneficiary and victim of self-induced brain trauma; Paul the theorist; Benedetta the activist; and the aged artist Josef. All are inclined to lectures, which Maya absorbs and the reader enjoys. All are obsessive, and not terribly well-rounded. Taken together, these

bright one-sided mentors suggest the patched-together wholeness Maya needs (as Maya's fragmented whole is also reflected in several engaging, complex, identity-augmented "post-canines"). Animals get to go first).

Sometimes Sterling uses Maya, with her practical grownup nature under her shamy youth, to gently twist the manner of intellectuals much like himself. (Ulrich, intensely, in German: "That's the polity's primary means of subversive integration. They'll make you a prized exhibit in their culture zoo. So they can boast of their so-called tolerance, while subverting the genuine cultural threat posed to their hegemony." Maya, tapping her translating device: "I think my translator got all that, but it didn't seem to mean much." Paul: "Beneath the repellent husk of the dying humanist agenda, we must systematically alter the physiological basis of cognition and the state of culture, and bear an honest, objective, and unpretentious witness to the results. That is the basic nature of our programme as artificers." Maya: "I see. Can you buy me a [train] ticket?")

Sterling creates a future increasingly post-modern, wealthy, healthy, materialistic. He gives it to Mia/Maya, his "creature of pieces and seams", to try to integrate the vigor of youth and maturity of experience, to learn to live daily human life with the creative engagement termed "holy fire".

This may be the core challenge of modern SF, possibly a core challenge of the actual

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first-world future, certainly a challenge for most of us. In *Holy Fire* Sterling has made a good run at it. Fine book, yet a fun book, playful and thoughtful. Science fiction readers can worry less.

Martha Soukup

Memory, Lois McMaster Bujold, *Bore Books*, 480 pages, hardcover, \$22.00

When we say that the Golden Age of Science Fiction is fourteen, we mean that the stories encountered at that age imprint readers' tastes. Consequently SF works hard to replicate that first sense of wonder, and the appealing freshness of a world of exciting possibilities, and few commitments. Thus your typical SF hero is an adolescent. Oh, sometimes he has multiple post-graduate degrees, and his birth certificate may say he's in his mid-30s, but as far as his (rarely her) lifestyle goes, he's stuck at perpetual fourteen in his heart.

This review will not become a sermonette predicting the "End of SF As We Know It". The SF *bildungsroman* deserves its place in literature: the equivalent, if you will, of a juicy cheeseburger. Cheeseburgers are fine and

good, and lots of people love them, but few want them for breakfast, lunch and dinner. SF is chockablock of that strain of gosh-wow, which won't completely satisfy anyone in the long-run. How many books and series sell loads yet rarely get discussed, never get nominated for Hugos and other awards?

On occasion, though, an author comes along who can not only deliver the cheeseburger, but also supply the rest of a well-rounded literary diet, like characters whose emotional lives progress along with the lives of their readers. Which takes us to the subject of this review: Lois McMaster Bujold's latest installment in her Vorlogian series, *Memory*, wherein ImpSec Lieutenant Lord Miles Vorlogian, who has been ripped, kicked and screaming from the bosom of fourteen-year-old-hood over the course of six novels, finally gets into trouble he can't get out of, and it's no one's fault but his own.

At the end of *Mirror Dance*, the Vorlogian Saga novel immediately preceding this one chronologically (*Cetagenia*, published last year, takes place much earlier in Miles' career), Miles/Admiral Naismith is recovering.

Continued on page 100

BOOKS TO WATCH FOR

Panda Ray, by Michael Kandel (St. Martin's). With a light hand bringing back fond echoes of Zenna Henderson's *People* stories, Kandel tells the moving tale of an ordinary-appearing young boy who is in reality the youngest child of an extra-terrestrial family.

A Spell for the Fulfillment of Desire, by Don Webb (Black Ice). Webb's quirky stories are always a delight, as readers of our pages know. Those sick of the usual SF fare should track down his latest collection for an even stronger dose of Webb's weird medicine.

Serve It Forth, by Anne McCaffrey and John Betancourt (Warner Aspect). In the early '70s, McCaffrey published a collection of recipes by science fiction's stars writers. Now, in a long-awaited sequel, SF returns to the kitchen for a second taste of strange.

100 Astounding Little Alien Stories, edited by Martin H. Greenberg, Stefan R. Dziemianowicz and Robert Weinberg (Barnes & Noble). The editors have amassed 544 pages of classic encounter tales by the likes of Dick, Knight, Pohl, Sturgeon, Elish, Zelazny and 94 others.

The Fall of Sirius, by Wil McCarthy (Penguin Roc). Another gem of Hard SF from McCarthy. Two thousand years after the Waister armada destroyed entire star systems to force humanity into submission, the Waisters have returned, and Earth has its second chance.

The Wall of the Sky, the Wall of the Eye, by Jonathan Lethem (Harcourt Brace). Lethem is slowly being staked to the mainstream, if you believe the attention paid to him by the popular press. But this masterful collection shows that his heart is still in the right place.

The Outer Limits, Volume 1, edited by Debbie Notkin and Roger Stewart (Prima). Thirty years ago, a deep voice announced that there was nothing wrong with your television. Now there is nothing wrong with your bookstore either, as Ellison, Duane and Lupoff prove.

Three Books of Known Space, by Larry Niven (Ballantine del Rey). This welcome omnibus edition contains the complete text of *World of Ptolemy* and *A Gift from Earth*, as well as short stories, and both an updated timeline and bibliography of all Known Space tales to date.

Humpty Dumpty: An Oval, by Damon Knight (Tor). Over the past fifty years, Knight has done it all, as writer, editor and critic. Last year, SFWA named him Grandmaster,

but he has never been one to rest on his laurels. Witness his newest — and perhaps best — novel.

Hackers, edited by Jack Dann and Gardner Dozois (Ace). We're living in a computer age, with the cybercowboy our newest hero. A virus of good writing runs through this volume, courtesy of William Gibson, Pat Cadigan, Robert Silverberg and others.



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fully weird web site.

<http://www.io.com/~shiva/SMOF-BBS.html>

The online world moves fast. So, very, very fast. So fast that the archives from the SMOF BBS, arguably the world's oldest SFnet online resource are the digital equivalent of crumbling parchment. Still, the complete run of the seminal cyberpunk zine *Cheap Truth* is nothin' to sneer at. Those with delicate stomachs, be forewarned — this thing is ugly to look at.

<http://www.trenton.edu/~klethius/3k.html>

From the mind of a University student in Trenton comes this page dedicated to *Mystery Science Theater 3000*, that insanely brilliant showcase for the humiliation of lame rubber-monster movies.

<http://www.drmoreau.com/>



Speaking of rubber monsters, the latest big-budget site devoted to a high ticket film is up and running. I'm speaking of *The Island of Dr. Moreau*, billed as the "scariest book written by H.G. Wells" (Like other movie sites, this one pushes the envelope of online ostentation: sounds, movie clips, 3D VR panoramas of the SFX props, and animations, animations, animations.

<http://www.greyware.com/speculations/maven.htm>

Author Cynthia Ward is a regular contributor to the online writers' e-zine Spec-

ulations (<http://www.greyware.com/speculations/>) in the guise of the Market Maven. Don't miss her incredibly exhaustive list of markets for genre authors.

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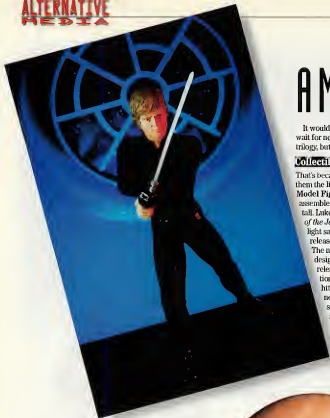
Ellison's Wonderlands

HARLAN ELLISON IS A SURVIVOR. NOT ONLY DID HE MAKE AN appearance at a Horror Writers of America annual meeting in his usual passionate inimitable fashion to pick up a richly deserved Grandmaster Award mere weeks after his open heart surgery for a triple bypass, but his many creative projects are also enjoying a timely resurgence. *Harlan Ellison's Dream Corridor Quarterly* is back once more from Dark Horse Comics, which had suspended publication during the recent comic book distribution wars. The

new quarterly features more pages and stories than in its previous incarnation, notably "Rock God" and the award-winning "One Life, Furnished in Early Poverty." White Wolf has just released *Edgeworlds 1*, the first of twenty volumes of Ellison's fiction, essays, teleplays and columns. This first

volume gathers the out of print collections *Over the Edge* as well as *An Edge in My Voice*, published from revised, updated and expanded manuscripts. In addition, Mark Ziesing's cutting-edge (and eponymous) specialty press will shortly be presenting *Slippage*, Ellison's long-awaited compilation of gams. Send Ellison the best get-well card possible by purchasing any (or all) of these matchless products.





A Model Jedi

It would take the patience of a Jedi Knight to calmly wait for next year's release of the revamped *Star Wars* trilogy, but luckily, Screamin', Inc. is here to make sure

Collectibles the rest of us don't have to go through *Star Wars* withdrawal. That's because LucasArts Entertainment has given them the license to manufacture the **Luke Skywalker Model Figure Kit**, a 1/4 scale vinyl model that once assembled, will stand approximately seventeen inches tall. Luke comes dressed in black as seen in *Return of the Jedi*, and he is posed brandishing his trusty light saber. This is Screamin's twelfth successful SF release, and their ninth 1/4 scale *Star Wars* figure. The model, sculpted by Jeff Brower, has been designed for a dueling scene with the already released Darth Vader kit. For further information, visit their website at <http://www.global.net/screamin>. You won't need the Force to make this model a handsome addition to your kit collection—the suggested retail price is only \$67.95.

Picard's Planets

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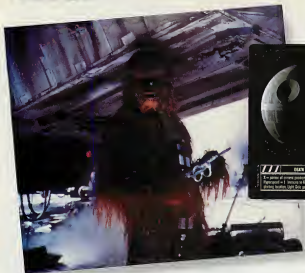


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Chewbacca Is Back

The premiere edition of the *Star Wars Customizable Card Game* was so popular with gamers looking to recreate the thrill of the George Lucas trilogy that Decipher has introduced their first expansion set. Just out is *A New Hope*, an assortment of 162 exciting new cards which introduce additional elements

from the first *Star Wars* film. Many of the new cards have been created in response to player feedback (and certain of the rules have been fine-tuned as a result of player suggestions as well). Some of the new characters available include Chewbacca and R2-D2, but players on the Light Side shouldn't get cocky, for they must watch out for some equally powerful new features on the Dark Side as well, such as the Death Star, capable of blowing away entire planet systems. For further information, visit Decipher's website at www.decipher.com, where you'll find tournament rules and be invited to send a virtual *Star Wars* postcard to your Internet friends.

NEW ON VIDEO

Star Trek: The Premiere Episodes: This gift set includes five pilot episodes from the four *Star Trek* TV series. Episodes include "The Cage" and "Where No Man Has Gone Before" (original *ST*), "Encounter at Farpoint" (*ST: TNG*), "Emissary" (*ST: DS9*) and "Caretaker" (*ST: Voyager*).

Mystery Science Theater 3000: The Movie: The cult comedy show moved to the big screen to lovingly heckle the 1955 SF film *This Island Earth*, starring Jeff Morrow and Cheryl FX. The only place to catch all the fun until the upcoming series relaunch on the Sci-Fi Channel.

Stargate: Kurt Russell and James Spader star in this new special edition of the interdimensional action flick. While you wait for the rumored sequel, enjoy this letter-boxed director's cut that includes nine never before seen minutes of previously unseen footage with nine new scenes. **Ghost in the Shell:** This film based on the SF manga of artist Masamune Shirow

(illustration shown at right) is the most expensive and technically advanced Japanese animated feature ever. This full-length cyber-thriller was made by the producers of *AKIRA* and features music by Brian Eno and U2.

Death Race 2000: Before Sylvester Stallone bit it big with *Rocky* and *Banana*, he starred in this black comedy of killer cars cruising across future America. In this entry in the Roger Corman classics series, the legendary director shares behind the scenes anecdotes.

The Arrival: This critically acclaimed tale of alien encounters should not be overlooked in your rush to see *Independence Day* for the tenth time. Starring Charlie Sheen, and directed by David Twohy, the screenwriter for *Waterworld* and *Alien 3*.



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By Dan Perez

The Sci-Fi invasion continues as the new Fall TV season turns cosmic.



Star Trek: Voyager returns for a third season (above), while Chris Carter hopes to duplicate the success of The X-Files with his new series Millennium (below).

THE FALL TV SEASON IS UPON US, AND WITH THE cooler breezes will come some cool SF shows—at least that's what the networks are hoping for. This season comes on the heels of a rough summer of cancellations. The casualty list at press time includes ABC's *Aliens in the Family*, CBS's *American Gothic*; NBC's *Sequest 2032*; Fox's *Space, Above and Beyond*, *Strange Luck*, and *Kindred: the Embraced*; as well as UPN's *Deadly Games* and *Nowhere Man*. While this may seem like a trend, network representatives agree that it's purely ratings-driven. Still, the relative dearth of new genre shows may mean that studios are being a bit more conservative about science fiction, fantasy and horror shows.

The heavy hitters, popular shows like the two *Star Trek* shows, *The X-Files* and *Babylon 5* were all renewed, as were newer hits like *Hercules: the Legendary Journeys* and *Xena: Warrior Princess*. Fox's *Sliders* proved that there's life after cancellation when the network revived the show for a mid-summer replacement series (much to the delight of the show's many fans).

At press time, the new television season only features a few new SF-oriented shows.

ABC's sole genre offering is *Sabrina*, the *Teenage Witch* (Friday, 8:30-9 p.m. EST) a half-hour comedy starring Melissa Joan Hart, formerly of Nickelodeon's *Clarissa Explains It All*. Hart played the title character in the Showtime pilot, based on the sorcerous heroine from the popular *Archie* comic books, and will reprise her role in the series. After discovering that she has witchy powers, sixteen-year-old Sabrina is tutored by her two eccentric aunts and a warlock in cat form.

Similarly, CBS only has one SF show slated for its fall lineup. *Early Edition* (Saturday, 9-10 EST) is an hour-long show starring Kyle Sandler, Shamesia Davis and Fisher Stevens. Sandler stars as a man whose morning newspaper inexplicably arrives 24 hours before the news therein actually occurs. He and his friends try to use the information to make a difference in people's lives (although Fisher plays a droll character who would rather bet on the horse race results in the paper).

NBC has two new shows waiting in the wings. *Dark Skies* (Saturday, 8-9

ET) is an hour-long drama starring Eric Close, Megan Ward and J.T. Walsh. A serialized thriller that begins during the Kennedy years, but spans four decades in America, *Dark Skies* features Close and Ward as a couple who discover an epic, conspiratorial struggle between humanity and the alien "Hive," which has figured prominently in American historical events such as assassinations, wars and technological innovations. Tobe Hooper (*Texas Chainsaw Massacre*) directed the two-hour pilot.

Also on NBC, *The Pretender* (Saturday, 9-10 EST) is a one-hour drama starring Michael T. Weiss, Patrick Bauchau and Andrea Parker. Weiss, late of *Days of Our Lives*, plays Jarod, a genius whose staggering intelligence allows him to master any technical profession, a skill he uses to wage a vigilante crusade for justice. Complicating matters are a brutal group of agents from a sinister, top-secret research agency who seek to return Jarod to their custody.

Fox's sole new show is the hotly-anticipated *Millennium* (Friday, 9-10 p.m. EST), a one-hour drama starring Lance Henriksen, Megan Gallagher and Bill Smitrovich. Created by *X-Files* wunderkind Chris Carter, this show will take over *The X-Files*' Friday night time slot (*The X-Files* will be moving to Sunday at 9 p.m.). In *Millennium*, cult film



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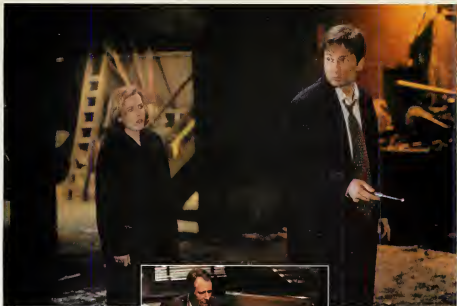
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Some old faces will return this season on *The X-Files* (above), while the heroes of *Dark Skies* will look for the truth about alien visitations during the Cuban missile crisis (at right). In its fourth season, *Babylon 5* will introduce new aliens to join the eerie Vortan ambassador (below).

favorite Lance Henriksen plays Frank Black, an ex-FBI agent with uncanny empathic abilities. As the end of the century nears, fear and chaos have run rampant, and Black joins forces with a mysterious underground movement to reverse the inevitable horrors perpetrated by those who prey on society's deepest fears.

UPN's only new genre show is *Homeboys*

in *Outer Space* (Tuesday, 8:30-9 EST), a half-hour comedy starring Flex, Mel Jackson, Rhona Bennett and Kevin M. Richardson. This high-concept comedy (the title just about says it all) follows the 23rd-century exploits of Ty and Burr, a pair of spacefaring "freelancers" who travel around the universe in a ship called the *Space Hoopy*. The ship is guided by a saucy computer named Loquaxia and maintained by goofball mechanic Carl. Ty and Burr do odd jobs, flirt with space babes and struggle to make some cold, hard "shazdibs" in this vehicle created and executive produced by Ehrlich Van Lowe (*Roc*).

As for shows that will be returning, the primary news is schedule-shuffling and cliffhanger resolution.

ABC's hour-long adventure drama *Lois and Clark: The New Adventures of*

Superman (Sunday, 8-9 EST, starring Dean Cain, Teri Hatcher, Lane Smith and Justin Wralin) is the show that torpedoed the *Sonquest*. With a solid lock on its Sunday night slot, the sexy hit show is set to begin its fourth season. Unresolved as of last season, and likely to spark tension this season, is when the Man of Steel and Lois Lane will tie the knot, what with

Superman headed back to Krypton and all. The show has built up a good head of steam (Teri Hatcher is, after all, the reigning queen of the Internet), so odds are that *L&C* will continue to win out in its slot while other networks keep doing the Sunday night shuffle.

NBC's half-hour comedy *Third Rock From the Sun* (Sunday, 8-8:30 EST, starring John Lithgow, Kristen Johnson, Joseph Gordon-Levitt, French Stewart and Jane Curtin) promises more zany fun with the amiable aliens in human form. This show surprised just about everyone, becoming a sleeper hit for NBC thanks to its excellent ensemble cast and witty/lowbrow writing. *Third Rock* steadily built a word-of-mouth core audience for its 8:30 Tuesday slot last season, but problems are likely to ensue when it begins its second season on Sundays at 8, facing off against the entrenched *Lois and Clark*.

Fox's hour-long supernatural drama *The X-Files* (Sunday, 9-10 EST, starring David Duchovny, Gillian Anderson and Mitch Pileggi) continued to be a solid hit in its Friday night slot. The big news (likely to dismay





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Vincent Price stars as an obsessed doctor who discovers that fear has manifested itself as a parasitic creature, which grows on the spinal cords of terrified people. The only way the tingler can be destroyed is by screaming. *The Tingler!* is legendary horror director William Castle's magnum opus.

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dedicated X-Files) is that the show has been moved to Sundays to make way for series creator Chris Carter's new show *Millennium*. Other late-breaking news is that writers Darren Morgan and Jim Wong, who left the show to work on Fox's ill-fated *Space, Above and Beyond*, will be returning to pen some scripts. Will the switch to Sunday affect the show's ratings? Perhaps not, but there is the example of NBC's hit comedy *Mad About You*, which languished on Sundays last season after being moved from its original Thursday night slot. The rumor mill also reports that the first few episodes of the fourth season will be aired on Fridays, and then the series will make the move to Sundays.

Also on Fox, the hour-long adventure show *Sliders* (Friday, 8-9 p.m. EST, starring Jerry O'Connell, Sabrina Lloyd, Cleavant Derricks and John Rhys-Davies) proved to be the show that wouldn't die. After cancelling *Sliders*, Fox changed its mind and slotted the show as a mid-summer replacement series. Much to the delight of this alternate-universe show's fans, Fox also ordered twenty-five new episodes, which will make the troubled series' third season its first full season.

Fox's hour-long drama *The Sentinel* (Wednesday, 8-9 EST, starring Richard Burgi, Garrett Maggart and Bruce A. Young) will return for a second season. *The Sentinel*, which began as a mid-season replacement last year, features Richard Burgi as Detective Jim Ellison, a "sentinel" with greatly enhanced sensory powers. Brought to you by the creator/exec producer team of Danny Bilson and Paul DeMeo (*The Flash* and *The Rocketeer*), this show has clung steadily to its Wednesday prime-time slot in spite of flashier shows like NBC's *Jag* and a popular rack of ABC comedies. It stands to benefit from *Star Trek: Voyager*'s move to Wednesday nights, as well.

UPN's hour-long *Star Trek: Voyager* (Wednesday, 9-10 EST, starring Kate Mulgrew, Tim Russ, Robert Beltran and Robert Duncan MacNeill) ended its second season with a bang, as the Kazon made off with the *USS Voyager*, leaving the crew marooned planetside. The show will make the move from Monday to Wednesday, which should be much easier on ratings than the weekday-to-weekend move other shows must weather. Seasoned *Trek*-watchers will be waiting to see if *Voyager* finally hits its stride in its third season as behind-the-scenes musical chairs occurs (former executive producer Michael Piller will now be a creative consultant to the show).

Star Trek: Deep Space Nine (syndicated; check local listings; starring Avery Brooks, Michael Dorn, Nana Visitor, Terry Farrell and Alexander Siddig) continued to be the *Trek* show of choice for many dedicated fans, with its well-established ensemble cast and more character-oriented storylines. Last year's big revelation was the addition of *Star Trek: The Next Generation*'s Michael Dorn (who plays the Klingon Worf), and the upcoming fifth sea-

son is rumored to feature an ambitious computer graphics imaging (CGI) sequence utilizing footage of original series cast members, in which they interact with *DS9* personnel, aka *Forrest Gump*. Other storylines will follow the now-human Odo (René Auberjonois) and troubles with the Dominion.

Rumors of the *Trek* shows being troubled probably have elements of truth to them at some level, but the franchise has proven incredibly durable, and will likely remain so for some time. Fans of *Star Trek: The Next Generation* will be queuing up at movie theaters around Thanksgiving for the release of the second *TNG* movie, entitled *Star Trek: First Contact*.

PTEN's Babylon 5 (syndicated, check local listings; starring Bruce Boxleitner, Claudia Christian, Jerry Doyle, Mira Furlan and Andreas Katsulas) continued to unfold exciting chapters in its novel-for-television story arc last season, and fans can expect more of the same this season. *B5* auteur J. Michael Straczynski wrote all 22 episodes last season, a feat unparalleled in television screenwriting, and loyal viewers will be watching to see if he tries to write the entire fourth season, as well. Many are wondering which character(s) will buy the farm this season, following the startling assassination of Kosh, and if a new, equally inscrutable alien will take the place of the Vorlon ambassador. *Babylon 5* continues to get better each season, attracting more fans in the process, and after some close calls with cancellation, it looks like the show will now make it all the way through to its concluding fifth season.

Hercules: The Legendary Journeys and *Xena, Warrior Princess* (syndicated, check local listings; starring Kevin Sorbo and Lucy Lawless, respectively), are also still going strong, fueled by their saucy combination of humor and fistcuffs, along with a cavalcade of fun CGI monsters. For *Hercules*' third season and *Xena*'s second, the producers plan to do some darker episodes. *Xena* will feature a new male sidekick named Joxer and both shows will be doing special Halloween and Christmas holiday shows. *Xena*'s Halloween special will feature something particularly offbeat: Chinese "hopping vampires," imported from the Hong Kong horror films which have become cult favorites. It's doubtful that either of these shows will lose steam anytime soon.

Highlander (syndicated, check local listings; starring Adrian Paul, Alexandra Vandernoot and Stan Kirsch) enters its fifth season this year, propelled by the popularity of the movie series and its base of dedicated fans. Paul plays the lead character, Duncan MacLeod, an immortal destined to duke it out with other Immortals. Like *Star Trek*, *Babylon 5* and other popular shows, a wealth of information on *Highlander* can be gleaned from the Internet, if you're a new devotee of the show and want to catch up. All signs point to this show's continued immortality on the airwaves. □

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If today's politics are troubling, then what will we do about tomorrow's?



It has been said that politics makes strange bedfellows, and SF can make politics even stranger still, as this image of an alternate Elvis reveals. Art by Barclay Shaw.

PRESIDENTIAL POLITICS IS IN THE AIR AS 1996 draws to a close, and as usual, it isn't pretty. Keeping the machinery of government running is full of unfortunate pitfalls. Could Science Fiction have the answer to making it all run more smoothly? Our on-line forum dedicated an evening to wrangling with what the future might hold in store for politics and government.

Dr. Arlan Andrews, Sr. is a founder and corporate Vice President of MuSE Technologies, Inc., a high-tech start-up company in Albuquerque, New Mexico. He served as a fellow in the U.S. Department of Commerce and the White House Science Office from 1991 to 1993, in both the Bush and Clinton Administrations. His short stories have appeared in numerous SF magazines, including the premiere issue of *Science Fiction Age*. Geoffrey A. Landis' fiction credits are impressive. He won a Hugo Award for "A Walk in the Sun" and a Nebula Award for "Ripples in the Dirac Sea." He works for the Ohio Aerospace Institute at the NASA Lewis Research Center.

SF AGE: Looking back on this country's history, it seems as if our political structure, except for a few minor technical changes, has gone basically unchanged — though of course there have been attempts to pull things one way or another, such as the Civil War or the War

between the States or whatever you choose to call it. The question to start with is, will the future be as smooth? Would you care to speak about whether the future will stretch ahead as evenly as the past?

LANDIS: I always thought those two were the same.

ANDREWS: The War of Northern Aggression?

LANDIS: The War against Slavery?

SF AGE: Well — I don't mean us to get mixed up with that war, it was just an aside. I'd prefer to debate the future, and not so much the past.

ANDREWS: Politics is the process of attempting to govern ourselves. It depends upon individuals, the status of societal ideas, the progress of technology, and expectations. The next few decades will not be smooth. All of these elements are undergoing great change. Science fiction's role in discussing the politics of the future ought to be as significant as our past role in discussions of future technological change.

LANDIS: The democratic process practiced in America has one little-remarked facet which makes it a very stable system. That is the fact that we choose a new leader every four years. Typically, if you look at history, instability comes when leadership changes hands. Look, for example, at the chaos of the Mongol empire at the death of Genghis Khan. By choosing a leader continuously, we are always in practice. Losing a leader isn't a big deal.

ANDREWS: So long as that system operates well, and is accepted as the norm, it will work. When great numbers of people don't accept it, or ignore it, I believe it may be very unstable.

SF AGE: There's also the fact that since whoever's at the top changes every four years — or eight at the maximum — we can have patience. We rarely take drastic action, since most of us can always wait him out.

LANDIS: As Mark Twain said about the weather: "Don't like the president? Wait a few years."

ANDREWS: My take is that technological change — computers, the Net/Web, international electronic commerce — will make obsolete much of our present political system. It has already destroyed the old Soviets and will eventually bring down the few remaining totalitarian states as well.

SF AGE: Then what will replace it, Arlan?

ANDREWS: I have to admit, Scott and Geoff — twenty years ago I was running as the Libertarian Party candidate for Governor in North Carolina. Much of what I preached then came true under Reagan a few years later, and had a reasonable chance under the GOP Congress in '94. So, though I am gratified that privatization, deregulation and smaller government are the buzz words of today, I think there is still a long way to go. And I'm not a Libertarian Party member any more — I'm a Libertarian Republican.

LANDIS: Libertarianism has essentially disappeared in the U.S. It used to be a viable alternative to the existing political extremes. Unfortunately, the few remaining libertarians seem to have sold out to the right-wing,

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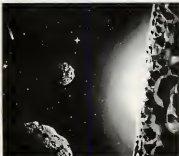
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which has some decidedly not libertarian views.

ANDREWS: Geoff, I would say that the Libertarian Party—not the philosophy—has disappeared as many of us grew up and recognized reality. The ideas are still there, mostly adopted by the Republicans. Even the Cato Institute now calls themselves "market liberals" instead of "Libertarians."

LANDIS: Baloney. The Republicans adopted some of the philosophical patina of libertarianism, but the idea of liberty is not one of them.

ANDREWS: Libertarianism died because it was captured by the leftist anarchists.

LANDIS: Leftist anarchist being the currently correct phrase for anybody who believes in actual liberty, eh?

ANDREWS: About the future: I think that more and more, government itself will become irrelevant. Most of the things it does now are counterproductive, especially to entrepreneurs and creative people. I still believe in the Libertarian Creed: Government should protect people from force, fraud and coercion, perhaps pollution. Everything else people can handle for themselves.

SF AGE: But is the future of politics merely the coming to power of new political parties? Or will the future hold the institution of new forms of government itself? You've heard the one about the difference between Democrats and Republicans being that the Democrats want to legislate economic issues and allow moral and social issues freedom, while the Republicans want to legislate those moral and social issues and instead let the economy run unchecked.

ANDREWS: I'm sorry, but if you follow the speeches of the current (until January 1997) president—

SF AGE: I think you mean until January 2001. You're letting yourself be too hopeful, I feel.

ANDREWS: —he is the one who proposes curfews, school uniforms, V chips, illegal FBI files collected by lawfives, and all in all, is acting like a fascist, complete with secret police and goon squads.

LANDIS: All things which have all, in one form or another, been proposed by Republicans. Not to mention censoring the Internet, and censoring or forbidding everything else in sight.

ANDREWS: You're right, Geoff, I forgot the Internet censorship one. When I was working in the White House Science Office under President Bush, my own boss attended meetings with liberals in which they were proposing censorship of the Net (the Information Superhighway, they used to call it). The Bush folks were against Net censorship. But not this bunch.

LANDIS: But I suppose we were supposed to be talking about the future.

SF AGE: That's right. So what should we replace it all with, if we could?

LANDIS: I would say that the tempting trend right now is the idea of direct electronic

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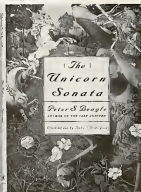
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democracy. Right now we have a form of government which is known as representative democracy. The people vote for leaders, and the leaders vote on the issues. In direct democracy, on the other hand, the issues would be voted on directly by the people. This is something that was clearly not feasible in the old days of horse-delivered mail, but is becoming technologically feasible with the computer interconnectivity.

ANDREWS: I believe that instantaneous, direct democracy would amount to mob rule. We cannot have that.

LANDIS: I agree with you, Arlan. Direct electronic democracy would be horrible! A huge step in the wrong direction. The problem is that the ease of direct voting would not come attached with any particular incentive for the people to become literate on the issues. It would be a form of voting by sound bites.

SF AGE: So how could this be tempered?

ANDREWS: Rather than have the concept of "rule" or "election," what if we just limited collective action to those specific issues of: protection from force, fraud, coercion, maybe pollution? I would propose that, if we are to have some kind of electronic democracy, that it be instituted within sanctioned "intelligent agents," each of which would have built-in proxies, and would gather in relevant "usegroups" there to hash out what might be recommended courses of action for the physical government to undertake, but having built-in safeguards: i.e., they could not react to any political situation without waiting for 48 hours. This would be a buffer to stop us all from reacting to another Oklahoma City by bombing a few Arab cities without investigation and reflection.

LANDIS: A thought. The actual purpose of democracy, of any political system, is to answer the question, "who makes decisions?"

ANDREWS: Geoff: I mean that every citizen meeting voting requirements would have such an intelligent agent proxy of their own.

LANDIS: Such an electronic system of agents wouldn't per se answer the question of who makes decisions.

ANDREWS: The decisions themselves would only affect the group — foreign invasion, retaliation, pollution, "global warming" (sic).

LANDIS: The question then comes to, who programs the agents?

ANDREWS: We relegate suggestions concerning the decisions to electronic fora, from which the physical, wetware humans who we have elected by paper ballots, take their cues about the desires of the electorate. In order to vote, you would have to take an online test of citizenship: read the ballot in English (only!), answer some questions about the Constitution and current events, and produce an income tax receipt. Otherwise, you'd have no business voting.

LANDIS: There is another, subtle criterion on the political process. That is: the answer to the question "who makes decisions" can never be any entity which is far removed from

the actual power. If the agency making decisions has no real power, then either that entity becomes an irrelevant figurehead, or the government is deposed. We've seen both alternatives many times, in the last century, and in the millennium before that.

ANDREWS: Irrelevant is the key word, Geoff. Most things that governments do, people do not want to pay for, so they should become meaningless, even more so than now.

LANDIS: Nonsense, Arlan. People most certainly do want the services; elected officials who cut the services don't get reelected. They may not want to pay for them, but they nevertheless re-elect the statesmen who vote for them.

ANDREWS: Let's do the future: socialism is dead, even though rigor mortis in North Korea and Cuba keeps minimum motions going, and China desperately tries to fend off the inevitable by combining state capitalism (i.e., fascism) with communism.

LANDIS: Perhaps. Socialism, however, is more an economic philosophy than a political one. A serious difficulty with socialism was that it didn't have a political mechanism to make it work. Could socialism work if it had been linked to some political philosophy other than that of absolute despotism? Now that's an interesting question.

ANDREWS: Socialism, in my opinion, Geoff, can't work with any organisms having IQs above those of termites. Of course, the Democrats have elected a Socialist as a Congressman from Vermont.

LANDIS: Let's also not forget China. The largest single political unit on the planet is still ruled by a communist junta. How China will change, and how that will affect the world, is the huge unknown.

ANDREWS: I keep repeating myself — government should only keep the bad guys and crooks from harming us. But governments haven't done very well with druggies or flans and cheats, and the southern border of my own state, New Mexico, is a joke that is barely noticed by the criminals who bring in drugs and people without so much as stopping. Government is *not* working in this case.

LANDIS: Sure, that's one view of government, Arlan. There are others. The Republican view, for example, is that government should turn America into a decent, family-oriented society.

ANDREWS: And the Democrat view is that the current First Family is the role model for us all?

LANDIS: Is it? I would have said that the classical Democrat philosophy is that the government should provide a safety net for the old, the poor, and the out-of-luck. The problem with a safety net, of course, is that one may tend to use it as a mattress.

ANDREWS: I'll stick with Jefferson's view; the rest is merely footnotes.

SF AGE: So what about the future? Has SF suggested any radically different political/governmental roles that are useful to consider?

ANDREWS: The future, guys, the future:

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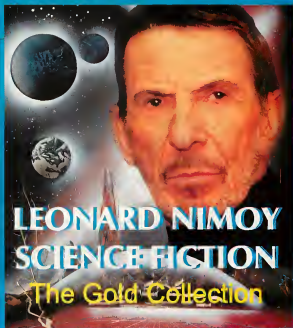


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You are invited to partake of the strangest meal that tomorrow can provide.
The food won't be poisonous, but watch out for the guests....

A CHICAGO DINNER PARTY, SOMETIME AFTER

BY W. GREGORY STEWART

Illustration by Janet Aulisio

FOREWORD

The room is large and formal, and at its heart is a massive table, oblong and oak and set for thirteen. Each place bears its burdensome share of crystal and candles and silver and so, upon a green cloth. The napkins are black.

There are high-backed chairs at most places, and most of these are as sweepingly delicate as the table is massive and demanding.

You have been invited for dinner, and you have accepted. You have traveled far, and you have arrived.

As you are brought into the room and to the table, you notice a maple breakfast. Displayed behind its beveled glass are millefiori paperweights. Behind each paperweight is the photograph of someone you do not know. There is a large, empty area in the front of a middle shelf.

The floor is uncovered, alternating squares of rough granite and smooth marble.

You are seated immediately, before you can perform a survey of place cards, before you can begin to learn with whom you will be dining this evening.

The next guest arrives, and sits himself opposite you and down one. To your left, to his right.

You blink.

And he nods back.

I LO FLAN IS A HANDSOME MAN, high-cheeked, hi-ho and away he goes. His lips are full and wide and smile more often than otherwise, they smile warm and they smile sly and they have a few tricks in between His hair is gray and it is gray by choice not age and chosen so to match his eye, the actual eye and not the socket on the other side. On the left side, on the left.

And in that socket, in that dark and empty, well — look, oh there it is now, his little fiddler crab, it comes out of the dark in the empty part and perches on the lower lid precariously (on the left), cock-waving its big claw and looking for a mate.

Lo Flan pulls a small bottle from a vest pocket and sprays something at his socket and his crab. "Sea water," he says, sufficiently, and you find that you really do understand.

Then the high-cheeked handsome man puts some few crumbs on his lower blind-



You look at the brain floating in its small nutrient sea, floating in its little glass world...

side eyelash, an offering of food, you suppose, and rightly, yes, while the crab goes to work, picking with his small claw and nibbling, eye stalks taking the party in, and flashing his big one up and down.

Up and down.

Up and down.

II WHILE YOU HAVE BEEN BUSY WATCHING A LONELY LITTLE socket crab dining alone in the face of a one-eyed man, technicians have been busy assembling Rhonda Red. Duck directly across from you. You finally notice that she is here when they move the sensory center and command module into place.

You look at the brain floating in its small nutrient sea, floating in its little glass world atop a stick-figure scaffold of servo-mechs, waldos and clone meat. Instead of a plate in front of her, there is a canister of — well, whatever it is, it moves in gray clots through a tube gangling from the canister and into a matte black metal box located about where a stomach could have been, should have been, used to be. Was.

You wonder if she has noticed you. You wonder if she has forgiven you. You wonder if she ever thinks about Heron Island.

And you turn away, before she can turn a lavender camera lens on you and feign pleased surprise, just in case that's how it went.

You remember how she looked in meat. No, wait, you think — in flesh.

III ONE GUEST IS APPARENTLY POSTHUMOUS — assorted limb-steaks and organ bits sitting on dry ice, some books and a ouija board resting on top of a vidscreen. The board is spelling out small — if cryptic — talk, while on-screen are images of a dead president getting that way.

The images play desperately along the path of an endless loop — the president repeats himself, the board repeats itself, and you look a little farther on along the table.

("Douglas? Is that you?")

You turn your head toward the source of the thin, tinny voice that has just dropped your name — it is Rhonda.

You smile and as you do so you wonder — if she still had lips — if she would smile back.

Anywy, you nod. Yes.

It's you.)

IV OUR SISTER OF THE SACRED WOUNDS WEARS BLACK, and bleeds freely as she charms those on either side of her with some risqué sectarian anecdote. You thought you had noticed a glass of white wine in front of her earlier, but now it is red.

She wears a black halter, she wears black panties, she wears a habit blackly. Her skin is whiter than mice, and shows her wounds well. She does not let them heal — as she talks to her dinner companions, she picks, she prods, she pulls open anything that seems to be closing. She is covered with a hundred mouths, a hundred pairs of red lips parted and speaking blood.

("How have you been?")

You cannot tell, but you think she really wants to know. So you

shrug, trying to be off-handed and afraid you might come off as coy. ("I've been all right. You know. Uh — yeah. I've been all right.")

Sometimes she licks a wound, and sometimes a drop of blood clings to her lip as she smiles and tells her stories.

V DOWN THE TABLE, ACROSS AND BACK AND OVER THERE, JUST there behind the ice sculpture of a giant rotifer, is Thambelina Philcard and her thumb monkeys. A flurry of flurry. monk has just caught your eye, and you look at her openly. She does not look back — nothing about you flurries.

You remember her story — years ago, she cut off her thumbs in protest of her human origins. Since then, her thumb monkeys, hand-raised simian servants, have made do as her hands entirely — feeding her, dressing her, wiping her nose, whatever. They were trained for this, the little New World cuties — indeed, they don't even know how to be monkeys any more ...

Her head is shaved, and you wonder if it's the monkeys, keep it stubble-free. But you don't really care. If you could see into the black of her eyes, you would see dead pandas, but you would not be sure whether she were witness to or unintentional participant in that reflected murder — and you still don't really care.

You have never met her, but you have seen her in person before, on a float in a Green Day parade, waving her thumbless hand parade fashion, turning it back and forth along its long axis. The float bore rain forest forms in floral celebration of their exotic diminishment in that world that had trouble caring any more. Her monkeys sat at her feet, on her shoulders; her monkeys scampered over the float until one fell off the front and was run over. Slowly.

While it screamed.

You do not believe she ever noticed.

("I haven't heard from you in a while. I was a little concerned." The tinny voice is without meaningful inflection — and there are neither lips nor eyes to wrinkle or blink out some subliminal hint. You do not know how she means what she has just said.

You want to take it at face value, but she has no face.

So you wait.)

VI HERE IS A MAN OF MELTING BONES, A MAN WITH A soft core, slouching in his dinner chair, strapped here and there, belts around the arms and over the chest across each other, and back in something like bondage and something like support — his head hangs forward so that you cannot see his face. He displays advancing Male Pattern Baldness — scalp and white hair contrast minimally, but the scalp gleams more in the candlelight.

He is likely here from one of the stations, but you cannot imagine what might bring a soft-boned down to Earth. A simple dinner party? It doesn't seem likely — but here he is, instead of being someplace important, someplace worth risking life while his heart works too hard and his lungs labor against an atmosphere as hard as sea level can be, he is here instead of being someplace ...

He is not eating that you can see, but he does seem to be handling his wine well, through a straw — glasses stand damp and empty before him.

He is not familiar. And you cannot read his place card.

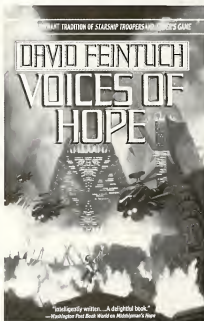
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"Who is he?" you ask Rhonda, grateful for anything to say at this point.

You have never seen a machine shrug before, but you believe that is what you see now.

"I don't know. Sometimes he seems familiar, but I don't know ... it never comes to me."

You nod — you know what she means.

For a change.)

From time to time, the soft man makes noise, but his head is down and he is too far away.

It sounds like he is saying, "Larg fermi."

But who knows, really ...

VII. YOU HAVE FOR SOME REASON BEEN SEATED between the Tweedles, Dum and Dee, performance artists who have undergone years of reconstructive effort at the Jackson Clinic in order to have themselves made over in those Carrollian images. They have just taken their seats beside you — you note that you are seated on the right hand of Dee — and they are apparently not speaking this evening. To each other or to anyone. Certainly not to you.

And this is OK, actually, yes, it's all right with you, it's fine, because you have never really enjoyed their oh so precious re-enactments — "Who's On First," for example — recited solo voice while pushing Altkon prints through a paper shredder and releasing flaming pigeons into the audience.

"I've been ... well, you know. There's been a lot of stuff. To deal with. And to get through. Just a lot of stuff." You are aware that this is almost certainly the stupidest thing you've ever said. And you are grateful that Rhonda's nonverbal abilities are nonexistent abilities (as far as you can tell), because you are certain that there would have been something mocking in her eyes, if she had had eyes, just now. Just then.

Instead, she nods her command module. Sort of. "Like what?"

Neither Dum nor Dee has removed his hat at table.

VIII. YOU RECOGNIZE MARIONETTE MEBER at first by her bust. Her breasts — those saucy, insolent Grand Tetons that have appeared on magazine covers across the system — rest perkily (if ponderously) on either side of her sacred plate.

You glance up, you look at her face — and her large green eyes look warmly into yours. She smiles, she shakes her head back, and in the nimbus of blonde that serves her for hair, she looks like some kind of not-entirely wholesome angel trying to get you into heaven the hard way.

You smile back. And try not to laugh. Your usual reaction.

Marionette's parents had wanted a perfect daughter. But Marionette's parents were products of a mass popular culture. And so Marionette's parents had had her engineered, genetically — modeled after a popular play toy. Marionette is in fact a living doll ...

She is the first (and last, to date) Barbie-spec genotype, and you have never been able to get past that facade to know the real Marionette, the woman inside, not in well over ten years of casual acquaintance and occasional friendship.

It is sad, really — her poetry is well received, she is bright, she is funny, she is warm. She is also courteous and considerate and caring. She is in fact everything that her plastic prototype would have been if pinocchio — but she looks, don't laugh, like a god-mocked doll, and you can't get past it.

("Do you know Marionette?" You change the subject, clumsily.

Rhonda does not respond to your question at first, and you wonder if she has heard you. Just now she is not looking at you.

But finally she turns her primary lenses in your direction — there is a nearly inaudible whirr as she does this.

"We've met — we really travel in different circles, though. Entirely different circles. Is she a friend of yours?"

Ah. Well. There it is. Something in the timing like emotion, you think. The thought comes to you that they really could travel in the

same circle — but neither wants to recognize just what that particular circle is ...

You shake the unworthy thought from your mind.

"We know each other — and, ah, our circles do seem to Venn a little. But that's it." You smile in a way that you hope really does say, that's it.)

Meanwhile, Marionette has turned her attention to the soft-boned man, drooping over his plate. She is listening to him. Or trying to.

"Larg fermi." Or whatever.

IX. OH, SLEEKIT BEAST, OF GRAY AND WAVE, THAT laughs to talk, and kens nae grave ...

There is only one nonhuman guest tonight, and that one, aquatic. (You do not count Plichard's thumb writers, neither do you consider the small family of bats pendulous from the ceiling beams high and higher above the dinner table.) You look to your right, past Dum, and see an edge of plastiform, and a side of the tank. Porpoises accept neither name nor designation, and so you do not even try to read any possible place card.

A box on the table serves first to give voice to what the porpoise actually says (for the benefit of those who know the language), and then to translate it (for those who don't). But since Dum isn't talking, the animal's attention is drawn farther to the right, and you are excluded from its consideration.

At first you wish (briefly) that you might have been seated beside the tank — it would have been interesting.

Then you remember Heron Island, and you are grateful for the buffering silence of the Tweedies, and the safe harbor of their mutual hostility.

"Rhonda," you venture, but once again she is not looking at you. Finally, you realize that any spare traces of her attention are given entirely to the undesignated dolphin. Uh, porpoise, you correct yourself. They prefer porpoise.

"Rhonda," you try, a little louder.

She looks at you. Again. And she waits.

"I'm sorry. About how it worked out. About that." You look up and down at her machineries by way of explaining what 'that' is.

She looks away again.

"I am, too," she says. Then she looks at you again.

"I am, too."

Dolphin, you think, unfairly, suddenly angry at any marine thing — I shall call it dolphin.)

X. AN UNREMARKABLE WOMAN HAS JUST TAKEN HER SEAT. She is somewhere between short and tall, dark and light, here or there and back again ... Her eyes are only hazel and her hair is that nondescript brown that is at its loveliest in summer sunlight and should only be seen by day. She is not an attractive woman, she is not an unattractive woman; she has an ordinary nose. She is, in all, painfully plain, but when she finally smiles at her dining companions — the dead president and the crab-eating man and his crab — you see that she has a pleasant smile.

You can read her name from where you sit. Trilla Blatt. And you know this name — but until now you never had an image to go with it.

So. The great humanitarian. Trilla Blatt. You are wrong — she may be nondescript, but she is not unremarkable. Community rights activist in her early days, you recall, and then bold re-writer of social contracts, and finally, the architect of a new world order — no, for heaven's sake, not on the home planet, never here in a hundred incarnations, not at all, not that — but somewhere else, and we understand that things are going very well there, thank you ... (Suddenly you are not interested in humanitarians.)

Suddenly you are back on the island, your honeymoon on the Great Barrier Reef, and you are remembering, you are with Rhonda. And Rhonda is as she was, which is to say, the light of your apple, the eye of your life and a laugh at the end of the tunnel. In the flesh, in the pink, in your life forever ...

Then reef walking, hand in hand and no barriers between you, great

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Here is a man of melting bones, a man with a soft core, slouching in his dinner chair...

or small, at all. Heron Island — wading out among the coral heads, across the coral sands, through the waters. There goes a harlequin tusk fish, you see it by the bright orange, no other like it, you don't even need to see the striping, the blue, the teeth — there it goes. Here are the crinoids, tentatively grotesque, in their calm undulations, in their quiet pools ...

Come on, you say to her, seeing where the reef dropped off, come on, you want to look at the sea in its dark bed, look out to the edge of worlds, you say, and so you take this loveliest of life by her trusting hand and pull her out to where the reef and forever both fell away into unbelievable blue ...

But the sea is the sea. It is a thing of moods, of careless anger as often as vast tranquility. You did not see, or seeing, did not understand, the wall of water running from one horizon to another, a sudden sea, sudden and here and gone — but not gone before plucking Rhonda Red Duck from your careful, careless grasp and rolling her shoreward, across the coral heads, over the balls of it and the horns of it and all of it tearing at her, abrading her flesh and dropping the dead red bits of her here and there for shrimp and urchin, crab and gobbie. Somehow, you did not hear her screams — but you heard her breaking up, you heard the sharp rattle-crack of bones snapping above the swell and pound of the wave, and the dull collapse of bone on bone below, and you saw the waters bleed.

You saw it all, even as the tidal surge picked you up and bore you shoreward as well. Then, somehow and impossibly, when you were both on shore, the seas past and the wrack of you each in ruin, you crawled up to the cottages, alone and unnoticed, in pain, then past to the island infirmary. (Infirmary be damned — what it was, was some bandages and a helipad. And cheap brandy.) You, weak and near collapse, could only gesture vaguely, mumble "help her," and melt into your own darkness.

And thanks to you, they found her. Months later you would come to think that they shouldn't have — but they did, and in what might have been her dwindling minutes, they picked up the pieces and put them on ice, in bio-stasis, and flew her off the Reef into Cairns, where they were not equipped to handle her.

So they banded her on into Sydney, where she would have a chance. And in Sydney, they did what they could.

YOU LOOK AT HER NOW, AND TRY NOT TO CRY.

You wish you had been strong enough to let go, then, instead of weak enough to let go, later on.

And you wish that you were strong enough to let go now ...)

XI. ONE CHAIR IS EMPTY, AND YOU WONDER WHERE your host might be. Wine has been drunk sufficiently, you think; salad has been served.

Then doors part like biblical seas, and your mother makes her grand entrance.

She is magnificent. Her once-pale skin has been replaced by — or has grown — a layer of golden scales, each of these ridged along the back of its crisp translucence by a ruby spine. She is naked.

Her nails are long, toe and finger — these too are red. Her hair is emerald and worn tight, and it shines beneath the chandelier (and the

hats). Her eyes are dark mysteries — there seem to be galaxies glinting in her pupils, and there seems to be no iris, no white, no enervation, just midnight and starshard, like the mantle of an eggshell cowrie, like the blade of a grim goanna.

You have not seen her in this flesh before; you think it suits her.

You have not seen her in this flesh before; and yet you think you have ...

She sits.

Just before she raises her hand to begin the procession of platters, she looks at Rhonda, and then she looks at you, and you see a tear form and fall from a distant galaxy.

You try to smile.

And you cannot.

("Rhonda," you say, not sure what you are going to say.

And this time she is already looking at you.

"I want to try it again. I'll go home with you, or you go home with me, I don't care, it doesn't matter ... I want to make it work."

"Oh, Douglas, don't ..."

"Please. We're still married. Anyway, I am ..."

"Douglas ..."

You look at her, and you wait. You are surprised at what you have done — you hadn't expected it — but you are pleased. You feel some clean thing in the heart of you that you cannot name — and you would not wish to lose. Please, you think — oh, please.

But Rhonda will not look at you the rest of the night.

And you will not remember anything past dessert ...)

AFTERWORD

A naked woman, a golden-scaled woman, sits alone at a dinner table. Scraps and platters are cleared, she has kissed her daughter-in-law goodnight, and the rest of the guests left before she did.

She looks at the oak expanse before her, at the dizzying infinities of its grain. She touches the wood — her palms and fingertips are without scales — and relishes the warmth of its finish.

She looks around the table at the empty chairs, puts her head down, and sobs.

In time she sits up again. Galaxies are grown dim in her eyes, and her face is tear-streaked. She looks at a small black box sitting on the table — it is the only thing on the table.

She walks to the black box, and picks up the up.

You do not know that she picks you up — you do not know anything. Your program was canceled when dessert was served, the black box was turned off, and its inputs closed. You are — quiesced.

Your mother carries you to the breakfast and opens it, and places your black box among the milleflore and the photographs, there to sit among the images of strangers, who might have been your father, for another year.

Until your next birthday.

She closes the breakfast.

She blows you a kiss through the beveled glass.

And she goes to bed.

("Rhonda," You say the name.

"Rhonda." And you wait for an answer, patiently. Oh, yes.

Very, very patiently.) □

A Hard SF universe continues to expand in "Saddle Point Dreamtime," three new linked stories in Baxter's mini-trilogy.

A Saddle Point gateway is unassuming. It is just a hoop of silvered metal, around a hundred meters across, facing the Sun. There are short tubes fixed at intervals around the circumference: like guns, pointing inwards.

A Saddle Point gateway is remarkable only in that it is a thousand times as far from the Sun as is Earth. And in that it is a door to the stars.

With every Saddle Point transition there is a single instant of pain, unbearable, agonizing ...

Dreams of Ancestral Fish

P A R T 1

BY STEPHEN BAXTER

When I flew into Kourou from Florida, Ben Roach met me off the plane.

The door to the plane was pushed open, and hot, humid air washed over me. This was East Guiana, a chunk of the northeastern coast of South America. All I could see, to the horizon, was greenery: an equatorial rainforest, thick, crowding trees, shimmering clouds of insects above mangrove swamps. Already I felt oppressed by this crowding layer of life, the dense, moist, untreated air.

I felt a stab of panic at the thought that this big, heavy biosphere was unmanned. *Nobody at the controls.* I guess I've spent too long in spacecraft.

Some kind of truck — it looked like it was running on gasoline — had dragged up a flight of steps to the plane. I was going to have to walk down myself, I realized. It was the year 2131, and, through the Saddle Points, I had traveled as far as eighteen light years from Sol. And here I was walking down airline steps, as if it was 1931.

It wasn't a good start to my new career, I thought bleakly.

Ben Roach was waiting at the bottom. He looked about thirty, and he was a head shorter than I am, with crisp black hair and a round face, the skin brown and leathery. He was wearing some kind of toga, white and cool.

I wanted to touch that face, feel its texture.

"Madeleine Meacher," he said.

"Yeah."

He stuck out his hand and told me his name. "I'm on the Triton project here. Welcome to South America's spaceport." His accent was complex — multinational — but with an Australian root.

I took his hand. It was broader than mine, the palm pink-pale; his flesh was warm, dry.

We walked towards a beat-up terminal building. There was vegetation here: scrubby, yellowed grass, drooping palms. It was a contrast to the lush blanket I'd glimpsed from the air, and from the top of the steps.

I asked, "What happened to the jungle?"

He grinned. "Too many fitters." He glanced down, then took my hand again. "You are hurt."

There was a deep cut on the index finger, a wound I'd somehow suffered on that creaky old staircase, probably. I studied the damaged finger, pulling it this way and that as if it were a piece of meat.

"This is the Discontinuity," said Ben.

"Yeah. Too much teleportation is bad for you. It's my own fault; the plane was so hot I left off my bioscop gloves." The gloves, like the rest of the body suit I wore, were made of a semi-sentient mesh of sensors which told me when I was damaging myself.

Eventually, as I played with the finger, I reopened the drying cut.

Ben watched curiously as fresh blood oozed.

Nemoto, my employer, had set up her office in the spaceport Technical Center. This housed a mission control center called Jupiter 2, a press office, a hospitality area and a dusty, shut-down space museum: tinfoil models of forgotten satellites.

Nemoto's office had a view of the full-scale Ariane 5 mockup that stood outside the entrance to the Technical Center. Sitting on its mobile launch table, it looked a little like the old Shuttles used to, with a fat liquid-propelled core booster (called the EPC, for *Etage Principal Cryotechnique*), flanked by two shorter strap-on solid boosters. The launch table itself was a lot more elegant than the Shuttle's Apollo-era gantries, though; it was a slim curved tower of concrete and steel, like a piece of modern sculpture, dwarfed by the booster.

This mockup had to be a hundred and fifty years old, I figured; its paintwork was eroded away, the old ESA markings barely visible. Mold and creepers clawed at the sides of the rocket, a slow, irreversible vegetable onslaught; the booster was drowned in green, as ancient and meaningless as the ruins of a Mayan temple.

Nemoto's office was cool, light, airy. Too neat. There was worn straw matting on the floor, and scroll paintings on the wall, and some flowers, in an *ikebana* display. It was all traditional Japanese, though I could see the 'paintings' were on some kind of softscreen, so configurable.

Nemoto was sitting on the floor, cross-legged, before a small but sudden, a Buddha shelf, under the window. She saw me looking at the carved statue.

"A Buddha," she said, "of fused regolith from the Mare Ingenii. Moonrock, shaped by human hands." She got up stiffly and went to a coffee pot. "You want some? I also have green tea."

"No. I burn my mouth too easily."

"That's a loss."

"Tell me about it." It was, an inability to drink hot black coffee was the handicap associated with the Discontinuity which I felt most severely.

Nemoto eyed me. "Here we sit: mirror images, relics of the twenty-first century. Both stranded in an unanticipated future. The only difference is in how we got here. You by your relativistic hop, skip and jump across light years and decades. The scenic route." She grinned. "And I came the hard way." Her teeth were black, I noticed.

"But we're both damaged by the experience, in our different ways."

She shrugged. "I ended up with all the power."

"Power over me, anyhow."

We studied each other.

When she hired me, I had looked up Nemoto. She used to be attractive: her face broad, pale, her eyes black, her hair shaved to show the shape of her skull. A cute kid, and a scientist. Now she had become a small, wizened woman, her face imploded, criss-crossed by Valls Marineris grooves. Her remnant of hair was a handful of grey wisps, clinging to a liver-spotted scalp.

Nemoto had been born in 1990. That made her more than a hundred and forty years old. Maybe she was entitled to look a little weathered.

She had started her career researching the asteroid belt for Kawasaki Heavy Industries. It was she who had turned up the first evidence of the Prión: alien industrial activity, in our asteroid belt. It was said she'd met Reid Malenfant, the first man to confront the Prión. Thanks to the burst of fame that discovery had won her, she'd gone on to become something of a power in Kawasaki Heavy Industries.

Then, she resigned, abruptly. No one was too sure why.

Now, I couldn't have defined her role. But her source of power was clear enough: her longevity.

The enzyme telomerase had turned out to be the key to anti-aging treatments. Cell viability is determined by telomeres, bits of non-coding DNA that sit at the tips of each chromosome. Little bits of telomere are lost every time the cell divides.

But cancer cells produce telomerase, an enzyme that rebuilds telomeres. Non-immortal cells could be granted immortality by switching on the dormant telomerase genes.

Simple as that.

The record so far was a hundred and sixty-eight years. Nobody knew yet what the upper limit was.

Thanks to telomerase, Nemoto, and a handful of privileged others, had gotten so old that they formed a new breed of power-player, her influence coming from contacts, webs of alliances, ancient debts and favors granted. Nemoto was a gerontocrat, modeling herself on the antique Communist officials who still ran China, some of them so old they remembered Mao himself.

I had my reservations about Nemoto. But only Nemoto would give me a job.

My experiences in other star systems had been... astonishing. And, I would argue, I had opened up the Galaxy for mankind.

But nobody would employ me on my return.

For one thing, no insurance company would touch me, or anyone else who had been through the Saddle Point gateways, after the Discontinuity condition had been diagnosed. And I needed money. The legal safeguards I'd put around my property, during my decades-long starflights, turned out to be less than effective...

I said, "When do you want me to start work?"

"As soon as you can. The first launches start in a week."

My job was to prepare two hundred rookie astronauts for spaceflight. They would be shot into orbit in a series of Ariane 12 launches, from here at Kourou, in crude six-ton aluminum cans; in low Earth orbit they would transfer into a fleet of transport spacecraft assembled, as I understood it, from used-up Ariane liquid fuel tanks.

"Not astronauts," Nemoto corrected me. "Emigrants."

"Emigrants to Triton."

"Yes. Two hundred Aborigines, from the heart of the Australian outback. Establishing a new nation on a moon of Neptune. It's an inspiring thought, don't you think?"

Or absurd, I reflected.

"All you have to do," she said, "is familiarize them with micro-

gravity. We've established a WET-F here. Just stop them throwing up or going crazy before we can get them transferred to the transport. I assigned Ben Roach to shepherd you for your first couple of days. He's a smartass kid, but he has his uses. Oh, Mencher."

"What?"

"I still need crew for the transport."

"To Triton? You're offering it to me?"

"If you're interested. Your Discontinuity won't be a serious liability if —"

"Forget it."

When I stood up, my left leg buckled and I nearly fell; I had to cling to the desk top. I found I'd been applying too much weight to the leg and the blood supply had been cut off. I hadn't noticed, of course; and that kind of damage is too subtle for the biocomp suit to pick up.

It was as if I was the old woman.

Nemoto watched me, calculating, without sympathy.

"The Triton colony is crucial," she said. "Strategic."

Oh. I started to see it. "You're working for the future of the species, Nemoto."

"Yes, if you want to know."

"You remind me of somebody else who hired me."

"Who?"

"Never mind."

... So that was why she had left Kawasaki Heavy Industries. Kawasaki had, it was said, taken an initial interest in the Prison. They had co-funded Reid Malenfant's pioneering mission out to meet them.

But organizations like Kawasaki are fundamentally concerned about profit in the near term, not the fate of humanity a million years down the line.

Evidently Nemoto's views had evolved away from the corporate goal.

My heart sank. If Nemoto was some kind of human-destiny idealist, she would be hard to deal with rationally. People like that always are.

The residential quarters had been set up in an abandoned solid-propellant factory. The cluster of buildings was still called UPG, for *Usine de Propriété de Guyane*. It was a jumble of white cubes spilling over a hill-side, like a Mediterranean village. It was sparsely set up, but comfortable enough.

About four hundred people lived here: the Aborigine emigrants, and permanent technical and managerial staff to operate the automated facilities. Once, twenty thousand had been housed in Kourou, a fifth of the country's population. The feeling of emptiness, of age and abandonment, was startling.

Ben showed me to my apartment.

I slept for a few hours, and showered off the grime of my flight. But a few minutes after stepping out of the shower, my skin was prickling with sweat again.

I felt no discomfort, of course. The Discontinuity left me with numbness, where pain or discomfort should sit. Like a fading-down of reality.

I stood, naked, at an open window, trying to get cool. It was evening. There was a breeze, which lifted loose leaves high enough to cross my balcony, but which served only to push more water-laden air into my face.

I looked across kilometers of hilly country, all of it coated by its burgeoning blanket of life.

The blanket of foliage coating the hills around the launch areas looked etiolated, to me: the leaves yellowed, stunted, the trees sickly and small by comparison with their neighbors further away.

I looked at the leaves at my feet. Some were yellow and black, others holed, as if burned.

The East Guiana spaceport, built up by the Europeans in the 1890s, extends maybe twenty kilometers along the coast of the Atlantic, from Sinnamary to Kourou, which is actually an old fishing village. There are control buildings, booster integration buildings, solid booster test stands and launch complexes, all identified by baffling French acronyms: BAF, BIL, BEAP. Nemoto's emigrants would be

launched from ELA 3, *Ensemble de Lancement Ariane Nombre 3*. Tracking stations nestle on small mangrove-cloaked hills nearby. There is much on-site manufacturing: plants to produce solid and cryogenic propellants, moulds and presses for booster segments, all connected by roads and rail tracks that looked, from my window, like gashes in the foliage.

Ariane was nice-looking technology, for its time. But it had long been superseded by new generations of spaceplanes.

But when the French released political control of East Guiana, the new government decided to refurbish what was left at Kourou. Manufacturing facilities were built up to supplement what was already in place.

So, Ariane kept flying. And East Guiana, one of the smallest and poorest nations on Earth, had a space program. With the passage of time, Ariane even managed to compete on price per kilo to orbit with the spaceplanes. But it remained an antique, disreputable, dirty, unreliable launcher, used by agencies without the funds to afford something better.

Like Nemoto.

I thought about Canaveral.

Many of the old structures are still there — the VAB, the remnants of the Apollo pads, ICBM Row. But now the flat coastal plain is crisscrossed by gleaming runways for the new generation of German, Japanese and American spaceplanes; from the air they can be seen like moths scattered across the sandy expanse, the white of their insulation felt glowing in the Sun. To me, born at the start of the twenty-first century, it all looks futuristic, remote, a von Braun dream come true at last. I miss the chunky old gunties, the giant crawlers, the fat, ungainly form of the Space Shuttle orbiters.

Kourou, in that way, was more like home. Maybe it wasn't a surprise that Nemoto, another relic of the first Space Age, had gravitated here.

I pulled on a loose dress, and walked the kilometer to the block containing Ben's apartment.

He served me a meek couscous rice with saffron, chunks of soya, a light loaf wine.

He told me about his wife. She was called Marie; she was only twenty, a little younger than Ben. She was in orbit, working on the big emigrant transports Nemoto was assembling. Ben hadn't seen her for months.

"It's strange finding Aborigines here," I said.

"Not so strange. After all East Guiana is another colonial relic. The French wanted to follow the example of the British in Australia, by peopling East Guiana with convicts." He grinned, his teeth white and young, a contrast in my mind to the ruined mouth of Nemoto. He said, "And now we can escape on the fliers." He mimed a rocket launch with two hands clasped as in prayer. "Whoosh."

He told me something of his story, why Aborigines had come here to travel to deep space, to Triton.

"We are forty thousand years old," he said. "I come from central Australia, from a group called the Yolngu. When I was a boy my family lived by a river bank, living in the old way. We could hunt, and catch fish. But the authorities, the white people, came and moved us to a place called Framlingham. Just a row of shacks and tin houses. They said it was for our own good, so we could learn to read and write and pray, and hear of the wonderful news coming from the stars.

"My parents adapted. They picked pears and peaches and built plastic UV tents for the farmers nearby. But they maintained the old ways. They still trapped some of their own food, and cooked it on open fires.

"But then, when I was eight years old, more white men came and told me I was going on a picnic, and took me away. My father came running in from the fields to protect me, but it was too late. My mother wept. The men were from the Aboriginal Protection Board.

"They separated me from my brothers and sisters. I kept asking about the picnic, but they wouldn't answer. They took me to an orphanage. They made me wear shoes, and sent me to speech ther-

spy, and combed and combed my frizzy black hair, so hard they broke off teeth from the comb. When they thought I was civilized enough, they sent me to foster parents in Melbourne. White people, called Nash. They were rich and kind. You see, it was the policy of the Government to solve their Aboriginal problem once and for all, by making me white ..."

I listened. I wondered how to respond to this, what to say. I seemed to lack sympathy, when I looked into his heart, for this man from a different time: from an age to which I didn't belong, with his talk of forty thousand years of family. It was as if the Discontinuity went deeper than my hind brain, as if it had separated me somehow from the rest of humanity.

I said, at last, "You must hate them, what was done to you."
"I understand it," He smiled. "It had been done before, in the twentieth century. Now they were trying it again. They were frightened, first of the Japanese, then of the overcrowded Indonesians and Chinese flowing down from the north, with their eyes on Australia's empty spaces, its huge mineral deposits. Australia has become a fortress, of white people, locked in the past. And with this black cancer at its heart. I do not hate them. I understand them."

As soon as he was old enough, at fifteen, he had run away from Melbourne and made his way back to Framlingham.

He had returned to Melbourne, later, to work and study. To my surprise, he turned out to hold a doctorate in black hole physics. But he had been drawn back to Framlingham, as had others of his generation, his family.

Slowly they had constructed a dream of a new life.
Almost all of the people escaping to Triton now were from Framlingham, he said. "It was a wrench to leave the old lands. But we will find new lands, make our own world."

More leaves blew in from a darkening sky, broken, damaged.
Ben picked up a leaf. "Acid rain," he said. "Every Ariane launch produces a hundred and fifty tons of aluminum oxide, a hundred tons of carbon monoxide and dioxide, a hundred tons of hydrochloric acid. All of which falls back on the forest and the ocean. If you work here long, it is advisable to wear filters, over the mouth or in the nasal passages. Many of us have lesions scored into our lungs. Once, when the old rockets flew regularly — the Titans, the Protons, the Shuttle — the destruction of atmospheric structures like the ozone layer was, year on year, measurable."

"Ironic," I said. "That it was possible to achieve space, the greatest dream of mankind, only at the expense of the Earth itself. Rockets and spaceships and star flight and alien species. The reality is turning out to be stranger than we had ever dreamed. And more damaging."

Ben shrugged. "No one cares."
"Ben — why Triton?"
He smiled. "Because Nemoto's offer was the only one available to us."

Ben served me *sambuca*. We were an Australian and an American, stranded here in East Guiana, drinking Italian liqueur. *Sambuca* is clear, aniseed flavored. Ben floated Brazilian coffee beans in my glass, and set it alight. The alcohol burned blue in the fading light, cupped in the open space above the liquid, and the coffee beans hissed and popped. The flames were to release the oils from the beans, Ben said, and infuse the drink with the flavor of the coffee.

He doused the flames, and took careful sips from my glass, testing its temperature for me so that I would not burn my lips.

The flavor of the hot liquid was strong, sharp enough to push at the boundary of my Discontinuity.

I considered making a pass at him.
I said, "What about Marie?"
He smiled. "She is not here. I am not there. We are human beings. We have ties of *gurrata*, of kinship, which will forever bind us."

I took that as assent.

We made love, in the equatorial heat, a slick of perspiration lubricating our bodies. Ben's skin was a sculpture of firm planes, and his hands were confident and warm.

I felt remote, of course, as if my body was a piece of equipment I

had to control and monitor. Ben sensed this. He was tender, and held me for comfort.

He was fascinated by my skin, he said. The skin of a woman born in a different century. The skin of a human being, tanned by the light of different stars.

I slept badly.
In my dreams I span through rings of pink metal, and confronted visions of geometric forms. Triangles, dodecahedra, icosahedra. When I cried out, Ben held me.

The Sun's gravitational field acts as a spherical lens, which magnifies the intensity of the light of a distant star along the line connecting the Sun to the star.

Every star has a different focus, in the Sun's gravitational field. At the point of focus — called a Saddle Point, out on the rim of the Solar System — the gain is measured in hundreds of millions.

A race called the Prion use gravitational lensing to send high-fidelity teleportation signals between the Saddle Points of neighboring stars. They came blundering into our System that way, and Reid Malefant went out to meet them, to tell them we are here. (We presume that was his intention anyhow. He never returned.) Evidently, the Saddle Point technology is the smartest way anyone has come up with of traveling between stars. It's slow — restricted to the speed of light — but it gets you there.

But we know that the Prion didn't originate the technology. Some older species, who have been spreading out from the center of the Galaxy along the Orion-Cygnus galactic arm, are the true pioneers.

We call them the Builders. We don't know much about them. The Prion won't say much.

Between humanity and the Prion, there exists a state of uneasy peace — or of low-grade warfare, depending on your point of view. The Prion weren't expecting to find our System inhabited, and were a little pissed when we asked them to take back the factory ships that had started chewing up the asteroid belt.

But they backed off.
Not that the Prion have stopped all industrial activity in the Solar System, according to conspiracy theorists like Nemoto. They're just a little more discreet about it now, is all.

There are other paranoid types, however, who would rather have the Prion inhabiting the asteroid belt than the Red Chinese, who have moved into the space the Prion left.

Anyhow, as part of the truce, the Prion take human observers on interstellar jaunts. Live cargo, on Prion flower-ships, sailing through the Saddle Point gateways.

I did it twice, before my recruitment by Nemoto. I saw astonishing sights. I went to places no human has been before — arguably, where humans aren't meant to go.

And I was left ... changed.
Perhaps it should have been expected.

The Saddle Point gateways, after all, rely on a quantum-physical teleportation principle. We know that human consciousness is quantum in origin, rooted in quantum fields contained in microtubules in the nervous system.

The gateway transformations damage these fields.
Essentially, I no longer feel pain.
I've performed because an expert on this.

There are two types of pain: stimulus-specific, transmitted by independent subroutines of the nervous system, and quantitative, caused by extreme stimulation of other subroutines. The gateway transformations break the link to the stimulus-specific mechanisms. The quantitative stuff is suppressed but not removed.

I knew there were hopes of treatment, based on a manipulation of that deep quantitative mechanism, some kind of artificial hook-up to the direct senses. I wasn't holding my breath. Nobody was putting serious money into the problem.

There were only a handful of star travelers. Nobody cared much.
And so I had to wear a constricting biocomp sensor suit, which warned me when I'd sat still for too long, or when my skin was burned or frozen, and woke me up in the night to turn me over.

We didn't anticipate any of this, when we started sending peo-

ple through the Saddle Points. The Prion didn't exactly give us a user manual.

Maybe the Prion aren't affected the same way. Maybe their consciousness is not quantum-based, like ours — we know they don't have true language, for instance. Maybe they aren't conscious at all, as we'd describe it.

Nobody knows.

The next day, we started work in the WET-F.

I snapped closed my visor and tugged at my umbilicals, testing their fittings.

I stepped to the edge of the WET-F tank. Frogmen were already moving through the water, playing around the sim like rubberized dolphins.

It's like a kid's game, I thought. Sims. I always hated sims.

I turned to see Ben. Because my suit was so stiff, I had to hop around like a rabbit. "You okay?"

"Of course, Madeleine." In his suit, he seemed anonymous, and he'd lost much of his composure.

"Good boy. Welcome to the Weightless Environment Training Facility, here in sunny Kourou. Beautiful sight, isn't it?"

Ben turned to the water. "If you say so."

This neutral buoyancy tank had been mocked up by the East Guiana authorities after the departure of the Europeans, to support their dreams of manned flight from Kourou. It was just a big water tank, a swimming pool.

Looming beneath the water I could see the hulk of a mocked-up EPC, an Ariane core booster, all of sixty meters long, with the mouth of its big Vulcan engine nozzle gaping at me. At one end it was fitted with a docking adapter, a squat cylinder, with a crude, open-ended mockup of a docked ferry craft fixed to the front. This sim wasn't painted, or finished in any way. It all looked ungainly, ugly, evidently lashed up in haste.

Nemoto's idea for her emigrant transport dated back to Werner von Braun. The first designs for the Apollo-era Skylab had been based on the same principle. Once the EPC had reached orbit the emigrants would drain the residual fuel, fit out the shell and live inside the big liquid hydrogen tank.

Thus, Ben's people would live in an aluminum can, all the way to Neptune, billions of kilometers away. It was, I thought, going to be *Framingham* in space.

I turned to Ben. "You set?"

"Let's do it."

My breath loud in my ears, I reached for the short stepladder, and lowered my clumsy, umbilical bulk into the water. I felt the mass of the water close around my upper body. The meniscus felt as tight as a vice.

There I was, floating in the water, loaded with lead weights. Neutral buoyancy.

I could never forget the presence of the water around me: the resistance to every movement, the blue, clammy light, the glopping of bubbles, the shadowy forms of the frogmen.

Conditions more different from the ice-cold stillness of space it was hard to imagine.

Ben came towards me, through the milky, dreamlike water, blocky in his suit, half-swimming. He reached out and took my hands.

"How strange it is," said Ben, "that to practice for the third realm, of space, we must return to the first realm, of the sea."

I could barely feel the pressure of his fingers over mine, could see only glimpses of his face, his skin, behind layers of glass, could hear only a scratchy headset representation of his voice.

It was, I thought, like when we had made love.

Ben released me. The frogmen got hold of my suited arms, and began to drag me through the water towards the sim.

The ferry mockup was just an open cone, fitted to the docking adapter. The simulation was supposed to start at the moment at which the emigrants were moving into the EPC to configure it for habitation.

Ben moved ahead of me into the docking adapter — a tight tunnel, lined with lockers — and then into the big hydrogen tank itself.

The metal walls of the tank opened out around me. There was no light in here — not yet — and so I had the feeling that I was following Ben into a huge, forbidding metal cave.

I unclipped a portable light from my belt and fixed it to the fireman's pole that passed along the axis of the tank.

My lamp sent glimmering light through the water along the length of the tank, to a wall at the far end that bulged inward towards me. This was the common bulkhead between the hydrogen tank and the booster's lox tank beyond. Handrails and poles looped across the cylindrical walls, and folded-up partitions and other bits of kit were stowed neatly against the walls of the tank.

With a gesture to Ben, I made my way deeper into the tank.

Ben and I manhandled packs of partition panels away from their stowage against the tank walls. Our job was to fit partitions of aluminum grid across the tank, dividing it up into sectors.

Putting the panels together was like assembling a jigsaw puzzle, working our way in to the tank's axis. It was dull, heavy work.

Frogmen had followed us into the tank. One of them had an underwater camera, and was recording me.

I worked faster than Ben. I just wanted to get this over. But every so often, my biocomp suit chimed a soft alarm, telling me to take a break. Ben, on the other hand, with his continuous awareness of discomfort, knew better how to pace himself, and soon overtook me.

Ben remarked on this. "The absence of pain," he said, "is evidently a mixed blessing."

I'd heard this before. "But being free of pain ought to be a dream. Why do we need pain? We're not animals. Pain is an evolutionary relic. Sure, it serves as an early warning system. But we can replace that, right? Get rid of sharp edges. Soak the world with software implants, like my biocomp, to warn and protect us."

"But," said Ben, "there is a gap between physical pain and our perception of that pain. I am talking of *qualia*, the inner sensations, aspects of consciousness. Your pain, objectively, still exists, in terms of the response of your body; what has been removed is the corresponding *qualia*, your perception of it. No more discomfort, and there is an end to the emotions linked with pain. Fear. Grief. Pleasure."

"So my inner life is diminished."

"Yes. Consciousness is not well understood, nor the link between mind and body. Perhaps other *qualia*, too, are being distorted or destroyed by the transitions."

"I'll become a zombie," I said. "An automaton. A machine indistinguishable externally from a human, but with no inner life."

He smiled at me. "You dream. Machines do not dream. Your inner life persists yet."

But, I thought, my dreams are of alien artifacts.

Perhaps my qualia are not simply being destroyed. Perhaps they are being — replaced.

I've never felt so scared as at that moment, when that thought crystallized.

We worked our way around the perimeter of the tank. It was simple work, but slow, clumsy and tiring. I found it hard to grip the tools with my suited hands, and the water resisted every motion.

He said, "Do you know what the central reticular formation is?"

"Why don't you tell me?"

"It's a small section of the brain. And if you excite this formation — in the brain of a normal human — the perception of pain disappears. In some sense, this is the pain center."

"How do you know so much about this?"

"I have ambitions myself to travel to the stars. To see a black hole, before I build my farm on Triton. It is worth my studying what would happen to me."

"Besides," he said enigmatically, "Nemoto has been forced to work closely with some of us, in establishing this mission. She has been, perhaps, more open than she would have chosen."

I wondered what he was hinting at.

He said, "Space isn't for humans. We weren't designed to go there. We go anyway, because we like to see stars. But we pay a price."

"The mind — recoils and tears. The Discontinuity. Now, Madeleine, we don't understand this rip in the mind. But we can modify it. Per-

haps even repair it. Maybe there is a way to have your soul return to your skull, like a bird to its nest, eh?"

That startled me. "What do you mean, repair it?"

"You know, the remarkable thing is that the reticular formation is in the oldest part of the brain. We share it with our most ancient, ocean-going ancestors. Madeleine, you have returned from the stars, changed. There are those who think we are indeed forging a new breed of humans, out there beyond the Saddle Points. But, perhaps, we are merely swimming through the dreams of the ancestral fish."

When the partition was completed, Ben made his way into the cramped adapter and towards the brightly lit water beyond. I followed Ben into the shadowy adapter; the lockers clustered about, restricting my movement. I was illuminated by the tank lights behind me, and the free blue water of the facility ahead of me.

I pulled up short, colliding softly with Ben.

I pressed my gloved palms against the closed hatchway. It wouldn't give.

"What's going on?"

Now the lights failed. We were left floating in pitch darkness.

Ben was on the edge. "Madeleine, what is happening?"

I took a breath, and calmed myself down.

"Ben, sim supervisors have always been famous for throwing crap like this at you. There will be an answer to this. We have to find it; we can yell at Nemoto later."

But Ben wasn't listening. Over my headset, I could hear his breath shallowing. Maybe he was having some kind of panic reaction. Claustrophobia, maybe.

In the pitch darkness, I was starting to forget which way up I was, where I was. Maybe I was drifting in the water.

Sims. I always hated sims.

I tried to concentrate; I pictured the adapter as I'd seen it just before the "failure": the useless docking port before me; the access tunnel back to the hydrogen tank behind me.

I reached out at random; my gloved hands clattered against lockers and handholds.

There must be something obvious I'm meant to do; something I'm missing. Think, damn it. If the docking port is blocked, then how —

Ben was starting to thrash around. He could hurt himself if he pulled an umbilical free, even kill himself.

"Nemoto, enough. Let us out of here."

She didn't reply.

To hell with this. I went to the blocked port.

As I'm right-handed, I chose my left side. Bracing against the lockers on the walls, I began to slam myself against the port, impacting with my left shoulder and arm.

When my biocomp underwear began to register damage, softly chiming, I shut it off.

Pretty soon I was numb, all down my left side. But the port was giving. It was only a mockup, after all.

The port opened, and I fell through, and the wreckage of the ferry mockup tumbled away around me.

Ben came clambering out. Away from the confines of the adapter he seemed to calm quickly. He swam over to me, and helped the frog-man haul me out.

I trailed blood, through a gush in my left sleeve. And my arm dangled, unnaturally.

I looked back at the sim. I realized immediately where I'd gone wrong, what Nemoto had intended. The docking adapter had two docking ports. Ben had been heading out through the axial port, which had been blocked; but there was also a radial port, stuck to the side of the adapter for just such a purpose as this.

So I had failed Nemoto's puzzle. It didn't matter. And my arm could be fixed.

The numbness was deep and tranquil now. I saw black spots, clustering around my vision, as if I was undergoing high acceleration.

I was blacking out, I realized.

The last thing I saw was Ben's face looking down at me, framed by

his opened visor, filled with concern. And —

Horror. Disgust.

As the light spun away, I hung onto what he'd said about repairing the Discontinuity.

I stormed into Nemoto's office. She was busy; an Ariane launch was imminent.

She took a look at the bandaging swathing my left arm and shoulder. "You ought to be in bed. You should be careful. You're not going to know if —"

"There's a way to reverse the Discontinuity. Isn't there?"

"... Oh." She stood and faced the window, the Ariane mockup framed there. She held her hands behind her back, and her posture was stiff. "That smartass kid. Sit down, Meacher."

Isn't there?

"I said sit down."

I complied. I had trouble arranging myself on Nemoto's office furniture.

"Yes, there's a way," she said. "If you're treated correctly before you go through a gateway, the translation can be used to reverse the Discontinuity damage. We tested it on lab animals, using the human-controlled gateways."

"Then why are you hiding this?" I asked, and then, "Send me to a Saddle Point."

She looked at me from her mask of a face. "You're sure you want this back? The pain, the anguish of being human —"

"Yes," I said.

She turned and sat down; she nested her hands on the table top, the fingers like intertwined twigs. "You have to understand the situation we face," she said to me. "Your neat little coup with the buster hydrogen supply was clever."

"Thank you ..."

My first Saddle Point voyage, as a passenger of the Prión, had taken me to a star system called a buster: a neutron star orbiting a primary, and dragging up a column of gas from the star beneath it. I persuaded the Prión to throw a UN-controlled Saddle Point gateway into the center of that column of dragged-up hydrogen.

The gateway flooded a patch of the Saddle Point radius, back in the Solar System, with dense hydrogen.

The Prión had tried to bottle us up, with their ramscop flower-ships. Thanks to my gateway, there was a place for our limping fusion ships to refuel, at the Saddle Point radius. Then, since it took a lot less energy to move from one point in an orbit to another than to climb all the way out of a gravity well, the whole of the Saddle Point radius was open to us.

I had, I modestly supposed, opened up the Galaxy for humanity.

It didn't help me find work, however.

"Meacher, it isn't enough. Look, if you challenge the Prión, they fall back, but only to a new defensive position. When Reid Malefant went and yelled in their faces, they shut down their factories in the inner System, the asteroid belt ... and went to work at the Saddle Point radius and beyond. When you found a way to resource a permanent human presence at the Saddle Point radius, they changed their tactics again. But they didn't go away."

"Some of us believe we're at war," she said.

"But not the Japanese and the Chinese and ..."

"We're at the heart of a glass onion," she said bitterly. "The Japanese — my former colleagues from Kawasaki Heavy Industries — have the Moon; the Russians are swarming over Mars; the Chinese are working the asteroid belt. Concentric spheres of influence. And meanwhile the Americans tinker with interstellar probes. Everybody's busy. And nobody is thinking about the bigger picture, the ultimate sphere of influence that surrounds us all."

"The Prión."

I wondered who 'we' were, in Nemoto's analysis. The human race? Japan? Nemoto herself, and the ghost of Malefant?

... But what, I wondered, if she is right?

Something connected in my head. "... Oh. The Discontinuity. That's why you have kept the cure so quiet."

"Don't you see why we must do this, Meacher? We need to explore

every option. To have soldiers — warriors — who are free of pain ...

"Free of consciousness itself."

"Perhaps. If that's necessary. Soldiers who are, from the moment of command, prepared to sacrifice themselves for the good of others ... As you did for Ben, in that tank —"

I was suddenly suspicious. "Did you engineer that incident? Were you testing the Discontinuity itself, my response to it?"

She didn't reply directly. "Meacher, it's an option we have to explore."

I felt disgusted. Sullied. The restructuring of my consciousness by the Saddle Points was terrifying. But it was also — awesome. The most remarkable aspect, perhaps, of my journeys, more remarkable than to see alien suns.

How typical of humanity to turn this into a weapon.

I sat back. "Send me through a Saddle Point."

"Or?"

"Or I expose what you've been doing. Concealing a cure for the Discontinuity. Breeding a race of inhuman zombie super-soldiers ..."

She considered. "This is too big to horse-trade with the likes of you. But," she said, "I'll make you an exchange."

"An exchange?"

"I'll send you to a Saddle Point. Heal the Discontinuity. But afterwards, you go to Triton with the Aborigines. We have to make sure that colony succeeds —"

I shook my head. "That won't work. It will take decades for me to complete a round-trip through a gateway."

She smiled thinly. "It doesn't matter. It will take the Volgnu years to reach Neptune, more years to establish any kind of viable colony. And we're playing a long game here. Maybe some day the Prion will confront us directly. Some of us don't understand why that hasn't already happened. We need to be prepared, when it does. Maybe you will be a part of that. Where?"

"Where what?"

"Where do you want to go, on your health cruise?"

"I don't care. What does it matter?"

"All right. What do you know about mini blackholes?"

I smiled at her. It seemed we had a deal.

... And, black holes. Maybe Ben would come with me.

I wondered if Nemoto would still be clinging to life, still weaving her webs around the destiny of the species, on my return.

There was a rumble of noise.

She stood up. "There," she said. "You made me miss the launch."

We turned to the window. Kilometers away, beyond the mangrove swamps, I could see the booster's slim nose lift above the trees, the first glow of the engines. The light of the solid boosters seemed to spill over the tree line, startlingly bright rocket light glimmering from the flat swamps, as Ariane rolled on its axis.

A Saddle Point gateway is unassuming. Just a hoop of metal: still, silent, not transmitting on any frequency, barely visible at

all in the light of the point-source Sun.

With every transition there is a single instant of pain, unbearable, agonizing ...

Next time, for me, the pain wouldn't go away.

Icosahedral God

P A R T 2

THE JAPANESE-BUILT LANDER TOUCHED THE MOON, its rockets throwing up a cloud of dust, which settled too rapidly.

Ben Roach and Madeleine Meacher suited up carefully. Ben followed Madeleine's lead; she was an experienced astronaut. In fact, this would be her third Saddle Point gateway transition, her third voyage to the stars.

He climbed down a short ladder to the surface. He dropped from step to step, in the gentle gravity. He stepped off the last rung onto regolith, which crunched like snow under his weight.

There were various artifacts here, sitting on the surface of the Moon, and Nemoto, the spider at the heart of this operation, was waiting for them.

Ben walked away from the lander.

He couldn't see Earth so well. The Sea of Tranquility was close to the Moon's equator. Earth was directly above his head, and it was difficult to tip back in his pressure suit to see it. In fact the easiest way to stand was to tip *forward* a little, leaning on his toes, balancing the weight of the backpack.

The sunlight was very strong, and, under a black sky, the ground was a gentle brown. They were far from any habitation, and the antique, undisturbed plain looked like the Outback, in fact. He watched Madeleine floating over the surface, with a lightness he'd never seen before. She looked like a beach ball, human-shaped, bouncing across the sand.

Cocooned in her pressure suit, he knew she was unlikely inadvertently to injure herself. It was an odd irony, he thought, that Madeleine Meacher, damaged by starlight, was safer, more

at home, on the airless Moon than the crowded, noisy surface of Earth.

The colors of the Moon weren't strong, and the most colorful thing here was their Kawasaki Heavy Industries aluminum-frame lander, which, from a distance, looked like a small, fragile insect, done out in brilliant black, silver, orange and yellow.

The horizon was close, curved. The sky was utterly black, save for the Earth and Sun, the other partners in this central trinity of the Universe.

But when I live on Triton, thought Ben Roach, the Sun will be a bright point source. And the Earth will be no more than a pale blue point of light, only visible by blocking out the Sun itself.

Nemoto was showing Madeleine the various artifacts she had assembled here.

Ben saw a set of blocky metal boxes, trailing cables. These were, it turned out, a pair of high-power X-ray lasers.

Nemoto showed them the principles of operation. "A small fission bomb is the power source. When the bomb is detonated, a burst of X-rays is emitted. The X-rays travel down long metal rods. This generates an intense beam of X-rays. In effect, the power of the bomb has been focused ..."

These were experimental weapons, it emerged, dating from the late twentieth century. They had been designed as satellite weapons, intended to shoot down intercontinental ballistic missiles.

Meacher asked, "And what have the Priors paid us for this obscene old weaponry?"

"That's not your concern."

The habitat which would support them as they rode to the edge of the Solar System, and beyond, was a masterpiece of improvisation and low cost, he thought. It consisted of two modules — called FGB, Russian-built, and the Service Module, American-built — scavenged from the old NASA space station: never completed, long since abandoned, now in danger of orbital decay. The Service Module had been enhanced with an astrophysics instrument pallet, and control consoles within.

Nemoto had lofty goals. She believed mankind was involved in an epochal, but slow-burning, war with the Priors, a war which might determine the ownership of the resources of the Solar System, even the fate of mankind itself.

She had few backers, however, and little money.

Madeleine slipped her gloved hand into his. "We ought to name our ship," she said.

He thought it over. "*Dreamtime Ancestor*," he said.

She was puzzled. "I like it, but —"

"You don't understand it. I know. I'll tell you another time."

Nemoto said, "Come meet the Chakra."

The last artifact, sitting on the regolith, was a tank, a glass cube. It contained a translucent disc half the size of a human swimming slowly through oxygen-blue fluid.

Ben recognized this from *Scientific American* images. It was an Ectis, the first he had ever seen. This was a Chakra, an inhabitant of the black hole system that was the destination of this mission.

Ben stepped forward. He touched the glass walls of the tank with his gloved hand.

The Chakra rippled; it looked something like a stingray. He wondered if it was talking to him.

Through a hairline crack in the Chakra's tank, fluid bubbled and boiled into vacuum.

"You need to understand that the nature of this mission is a little different," Nemoto said. "You're going to a populated system. The Chakra have technology, it seems, but they lack spacecraft. The Priors made contact with them. The Priors initiated a trading relationship. The Chakra requested specific artifacts, which we've been able to supply, via the Priors."

Meacher asked, "What are the Priors getting from the Chakra in return for this?"

Nemoto said, "We don't know. The Chakra spend their days quietly in the service of their God. And their requirement, it seems, is simple. You will help them talk to God."

Madeleine said, "*With an X-ray laser?*"

"Just focus on the science," Nemoto said, sounding weary. "Learn about black holes, and about the Priors. That's what you're being sent for. Don't worry about the rest."

The Chakra swam like melting glass, glimmering in Earthlight.

They moved into *Dreamtime Ancestor*. The interior of the Service Module, and the FGB, was cramped and cluttered. The walls were lined with instrument panels, mounts for air-scrubbing lithium chloride canisters, other equipment. These two modules had served in low Earth orbit for too many years, and as parts had worn out replacements had been flown up and crudely bolted in place, and new experiments had been brought up and fixed to whatever wall space was available. As a result the clutter was prodigious; cables and pipes and lagged ducts trailed everywhere. There was also a lingering sour smell — the stink of people locked up in a small space for too long.

Ben and Madeleine settled their affairs on Earth. The black hole system was thirty light years distant, so they would be away sixty years, minimum. To Ben, it was a little like dying, but with the sting of a preparation for a bizarre afterlife, six decades hence.

It didn't take Madeleine long. She hadn't accrued any property to speak of since her last return. "Believe me," she said to Ben, "after sixty years of inattention, your estate will be left with nothing."

Ben spent some time with Marie, his young wife, who would soon depart for Triton. They reaffirmed their *garrutu* bonds of *galay* and *duwaya*, husband-to-wife, wife-to-husband.

The Priors flower-ship, with the human cargo attached, opened up its spider-web ramscoop mouth and sailed out of lunar orbit.

For the long haul out to the Saddle Point solar focus radius, the flower-ship settled into an acceleration equivalent to the Moon's gravity, one-sixth G, the Priors' standard for their human passengers. It would take two hundred and forty-five days to travel out to the mini black hole's Saddle Point, twelve hundred Astronomical Units from the Sun.

The Moon from orbit was a small planet: round, scarred, its surface obviously geologically complex, markedly three-dimensional.

In A.D. 2134, the Moon was Japanese.

Over its dark side Ben could see the swarming lights of the Japanese industrial complexes: immense open-pit mines like scars, centered on concentrations of aluminum, titanium and other metals. Mass drivers lay everywhere, silver threads against the meteorite-charned regolith.

The flower-ship passed over Landsberg Crater. Landsberg was a three-kilometer-deep pit near the lunar equator. It had been the site of one of the first big mines. Now it was domed over, and connected by blisters and tunnels hundreds of miles long to similar domes at Copernicus and Kepler, to the north-east and north-west. The triangle marked out by the three craters was almost all green and silver, with little of the grey-brown lunar surface left exposed.

The Landsberg triangle could easily be seen from Earth: a splash of life green against the Moon's dusty white. Smaller domes pocked the surface elsewhere, at Euler, Archimedes, and the giant at Ptolemaeus.

Ben was disappointed not to glimpse 2014OH, the Moon-crossing asteroid which had been diverted into a lunar orbit, and was now being mined for scarce volatiles: nitrogen, hydrogen, water. But he could see, in the Moscow Sea on the far side, the fresh new scar which marked the controlled impact of the Earth-crosser Geographos, whose wreckage was yielding trillions of dollars' worth of nickel, rhenium, osmium, iridium, platinum, gold.

Prior craft orbited over the lunar poles. They were tangles of silvery threads, like dragonflies. Kawasaki shuttles climbed up to them with their cargoes of helium-3 and metals, mined from the Moon's regolith. The Priors were Ecties who had come through the Saddle Point teleport gates at the rim of the System to expropriate resources, or to trade, depending on your point of view.

Ben Roach, with Madeleine Meacher, was to travel to the stars through a Saddle Point gateway, aboard this Priors ship.

In A.D. 2134 there were alien ships, orbiting Earth's Moon. Aliens, standing on the Sea of Tranquility. Aliens, in human spacecraft.

Ben watched Earth and Moon recede, a double crescent, their phases identical, neither alone in the emptiness.

Nemoto had hooked up to the Chakra's tank a powerful bio-processor, a little cubical unit, which would enable the humans to communicate, to some extent, with the Chakra, and with their Prion hosts.

The Chakra, it seemed, communicated by movement, their rippling surfaces sending low-frequency acoustic signals through the fluid in which they swam. In the tank, lasers scanned the Chakra's surface constantly, picking up the movements and affording translations.

Inter-species translation was actually getting easier, after the first experience with the Prion. A kind of meta-language had been evolved, an interface which served as a translation buffer between Eerie 'languages' and every human tongue. The meta-language was very basic, founded on concepts — space, time, number — which had to be common to any sentient species embedded in three-dimensional space and subject to physical law.

A small screen displayed the biopro-human interface design metaphor. It was a blocky, badly synced, two-dimensional Virtual representation of Nemoto's leathery face.

"Megacomplexities," Madeleine murmured. "It's a pattern."

"What?"

"Never mind."

Eating interplanetary hydrogen, the Prion flower-ship sailed towards the Sun, seeking to exploit the rich solar wind there. Ben wondered if his people, families and friends, would be watching from Framingham and Kourova, where they were preparing for the great Aboriginal migration to Triton. From Earth the flower-ships sailing round the Sun were visible, even in daylight.

Soon, though, perihelion was past. At last only the Sun showed a disk, and that was diminished.

Ben knew he was subject to claustrophobia, and he had taken intensive therapy to overcome this. Even so, the walls seemed to compress around him.

He was struck by the bizarre scale of things. The universe was divided into two elemental categories: objects within a few yards of him, so close he could, in principle, reach out and touch them, and objects a million miles away or more, effectively at infinite distance.

The journey was uneventful, and tedious.

They performed science studies, all the way from the Moon. But the experiments were rather pathetically small-scale, Ben felt. They monitored themselves for drug metabolism by taking saliva samples, checked for radiation health with miniature dosimeters strapped to their bodies, checked their respiration during exercises on the treadmill, and investigated the relationship between bone density and venous pressure by wearing little tourniquets around their ankles.

It was clear enough, Ben thought wildly, that science was not uppermost in the mind of Nemoto, who had designed this mission.

Virtual Nemoto provided briefing materials on mini black holes. This was new to Madeleine; Ben, with his deeper astrophysics background, reviewed it, and found it adequate.

The standard model of black hole formation depicted the shrunken remains of a star much more massive than the Sun, sucking matter into its infinitely deep gravity well. But space, it turned out, was full of much smaller objects: mini black holes, of size of order a meter or so. Almost small enough — Ben thought — to enclose within a human embrace.

The mini holes had been discovered from Earth-bound observations a hundred and fifty years before, by observing the fluctuations of light from quasars, much more remote objects. The fluctuations were on a scale of five or ten years, and couldn't be explained away as properties of the quasars themselves.

The fluctuations were caused by mini black holes, passing between the observer and the quasar, their intense gravitational fields acting like converging lenses to distort and focus quasar light ...

Madeleine was silent.

Ben knew she was thinking about visiting a quasar: an object as bright as hundreds of normal galaxies, and yet generating all its energy in a region the size of the Solar System. Perhaps it was powered by a massive black hole, as heavy as a billion suns.

There were probably Saddle Point routes to quasars. The Builders — the originators of the Saddle Point network — had been, or were, extremely ancient; they had had time to haul gateways out there, even at sublight speeds.

But any quasar was so far away that Madeleine, effectively, would never return from a Saddle Point journey.

Ben was bound forever, by welcome bonds of *guarata*, kinship, to his wife, Marie, whom he had perforce left behind. But he thought he was coming to love Madeleine.

He knew, though, that she was a traveler.

They were together now. She might come with him to Triton. But in the end, he would lose her to quasar light.

At the end of a twenty-four-hour cycle he found Madeleine, staring out of the window at the end of the FGB Module, which was docked on the end of the Service Module.

The Prion flower-ship was laid out something like a squid, a kilometer long and wrought in silver, with a bulky main section as the 'head' and a mass of 'tentacles' trailing behind. Dodecahedral forms, maybe six foot across, silvered and anonymous, clung to the tentacles.

The *Ancessor* itself was contained within the silvery rope stuff. Strands adhered to the hull, so that the port was criss-crossed with silver threads, and the *Ancessor* had become part of the structure of the Prion ship. Ben could recognize only two other cargo loads embedded in the silver rope: the oxygen-blue tank containing the Chakra, and the pair of X-ray lasers.

The flower-ship's petals were unfolded. They made up an electro-magnetic scoop, a thousand kilometers wide.

Dodecahedral forms drifted away from the ropes, and clustered around the human craft, and the other objects contained in the silver ropes. Ben had heard speculation that the dodecahedra were individual Prion. Or perhaps not.

Madeleine was dressed in the light coverall she used as pajamas. She had discarded her biocomp monitor suit, the web of warning sensors which protected her from unconsciously injuring herself. It didn't matter; lunar-strength gravity made for a forgiving environment.

Madeleine Meacher was thin, intense, not pretty, taller than Ben; she was biologically aged about fifty, but she had been born eighty years before Ben. Her life had been strung out by huge relativistic hops, her two journeys through Saddle Point gateways. And she had, he knew, been deeply damaged by those journeys.

Madeleine didn't care about the science, he knew, or about Nemoto's gigantic million-year goals, or even about the destination of the flower-ship. All she cared about was the transition itself, which should heal her of her Discontinuity, the quantum-level flaw in her sensorium which precluded her from feeling pain.

And yet, he could see, she deeply feared that healing.

He said, "Are you planning to sleep?"

She didn't want to move away from the window. The puffiness around her eyes, caused by an accumulation of fluids in low gravity, was marked, making her look bloated, unhealthy.

Ben nodded. She'd done this before. When she started to feel lonely, staying up all night would no longer seem such a great idea.

He went back to the Service Module.

Ben clambered into his sleeping bag, in his sleep compartment, a space like a broom cupboard, cluttered with bits of gear and clothing. The bag was fixed straight up and down against the wall of the module, and he had to crane his neck to see out of his window, at the slice of starry sky which drifted past there.

He pulled himself deeper into his sleeping bag, which soon became warm enough for him to be able to forget the endless vacuum a few inches away from his face, beyond the module's cladded hull. The pumps and ventilation fans kept up a continual rattle. It was like being in the guts of some huge machine.

After an unmeasured time, he felt a hand stroking his back. He turned in his bag. It was Madeleine, naked, her hair floating around her face in a big burst of color, silhouetted against the cabin lights.

The sleeping bags were, of course, too small for two people. But they'd found a way of zipping their two bags together. It was cold, the opening at the top liable to let in the draughts, but their bodies would soon build up a layer of warm air around them.

Madeleine clung to him.

To distract her, he had learned to tell her stories.

He told her the story of his foster father, who was white.

Bob Nash had been born in Sydney. He never knew his parents; he grew to awareness in a children's home.

Then, as an eight-year-old, he had been shipped off to the Outback: a boys' camp near a town called Elizabeth, close to Adelaide, a sprawling maze of tarmac and red-brick bungalows. The child migration program was part of a greater immigration drive by an Australian government whose slogan, working a White Australia policy under fear of Asian swamping, was "Populate or Perish". Ironically, a different aspect of the same policy would later bring Ben Roach, torn from his own home among the Aborigines, into Bob Nash's foster care.

Bob Nash, aged eight, found himself performing heavy manual labor at Nabberu Boys Camp. Nash built Nabberu. He mixed so much cement that the dust burned his feet and the sores on his knees and hands.

Ben said to Madeleine, "At Nabberu, Bob Nash was surrounded by scrub, bushland and wild. It was one hell of a dislocation for a kid who had grown up in a town. As much, I think, as for me, who was brought from the Outback to the city. If Bob had been left at home, he might have found some family, at least someone who might have known his parents. At Nabberu, he didn't even know who he was."

"Nabberu was so alien, so hostile he might as well have been transported to the Moon, he once said to me. My father's story, and mine, were thus symmetrical," he said. "Mirror images ... Discontinuities." And so on.

He had learned that Madeleine — flawed by her star travel, perhaps made less than human — needed to hear stories about people, about families and relationships and human lives. Stories of the interesting human world out of which she had flown.

He stroked her, and spoke to her, until she slept.

They discussed interstellar politics with the Virtual Nemoto, and, by lengthening radio links, with the original.

"Meacher, look at this," the Virtual Nemoto said one day.

In the monitor of the biopro, a grainy photograph appeared. A series of disks: the surface of some planet, the detail impossible to make out because of the blocky pixels. But the features had a certain regularity: strips of the surface covered in some darker material, spaced like the slices of an orange.

Madeleine asked, "What is it?"

"A Hubble image of Pluto."

"The Hubble?" Madeleine laughed. "I thought that thing fell back to Earth a century ago."

Through her mask of a face, Nemoto looked offended. "No. A few of us still send up refurbishment missions. It's not well publicized. Now that we can travel to the stars, nobody cares much about telescopes. Or Pluto. Nobody is watching."

"Except you."

"Except me."

"So tell me what I'm seeing."

"Evidence of Prion industrial activity on Pluto," she said. "We have other material. Infra-red signatures ... This is their new tactic. The Prion have landed on Pluto, and they're ... building something."

"What?"

"We don't know."

Ben said, "Why should we be concerned? Pluto is a long way away. Let them have it."

Nemoto's face crumpled with anger. "It's ours, damn it."

Madeleine turned to Ben. "Actually," she said, "I agree with Nemoto."

"And besides," Nemoto said, "Pluto is probably just the start."

"Of what?"

"Encroachment. Pluto is a world of ice and rock. There are others out there, maybe orbiting freely, certainly some captured by the giant planets."

"Ah," said Madeleine. "Including Triton."

Ben nodded; he understood this well. That was why Nemoto was proposing to fund the establishment of a human colony on Triton, Neptune's largest moon, the most distant terrestrial-sized body within the orbit of Pluto.

"What if the Prion came in that far? Then they'd have the resources of a gas giant."

"To do what?"

Nemoto shrugged. "We can only guess. Do you want to take a risk on their good intentions? ..."

And so on.

Nemoto was implacably opposed to the presence of the Prion in the Solar System.

Ben thought it was significant that Nemoto — so she said — had known Reid Malenfant himself. Malenfant, the first man to have flown out to a Saddle Point to confront the Prion, had been a Shuttle-era astronaut. He had already been old when she was young. It must have been like meeting Neil Armstrong himself, Ben thought. And Malenfant had impressed her; she saw herself as following his lead, elaborating on his theories, his goals.

Now, Nemoto herself was impossibly old. The program she had inherited from Malenfant had roots thrust deep into time, its validity impossible to establish from outside.

The day they were due to reach the gateway arrived.

The Saddle Point gateway was a simple hoop, of some silvered metal, facing the Sun, perhaps a hundred meters across. There were short tubes fixed at intervals around the circumference: like guns, pointing inwards, threatening.

Ben thought it was classically beautiful. Elegant, perfect.

As the flower-ship approached, Madeleine's fear grew evident.

He whispered to her, "Do you know the story of the Dreamtime?" She clung to him. "Tell me."

"Giant humans and other animals sprang from the earth, sea and sky, and they criss-crossed the empty continent of Australia. The journey was called the Dreamtime. At the end of the journey they returned into the earth, where their spirits still exist ..."

The gate grew, in Ben's vision, until it was all around the flower-ship.

"The places where they travelled or sank back into the land became mountain ranges, rocks, sites full of sacred meaning. Every sacred site has its own Dreamtime story that must be enacted at certain times of the year, to maintain the life of the land and the Dreamtime ..."

The flower-ship, without reducing its speed, reached the center of the gateway disc.

"And every one of us has his or her own Dreamtime Ancestor."

"Ah," she said, and she smiled.

A pink light bathed Madeleine's face. The light increased in intensity, until it blinded Ben.

With every transition, Madeleine had warned him, there is a single instant of pain, unbearable, agonizing ...

The Uncertainty Principle dictates that quantum information can be swapped around, but not copied, like classical information. So the Prion gateways must destroy the objects they teleport, using coherent light.

For thirty years Roach and Madeleine did not exist, except in legal forms on Earth. For thirty years a signal crossed space, to a receiver gateway which had been placed, by a Prion ramjet, in the system of the mini black hole. There was no guarantee that the signal would be received at all, let alone with good fidelity.

No one could say if the duplicates finally constructed of starstuff by the receiver gateway, thirty light years distant, were in any sense the same people.

Thus, Ben Roach and Madeleine Meacher crossed interstellar space.

... But this time, for Madeleine, the pain didn't go away.

Ben understood. She was immersed again in the agony of life.

Her discontinuity was healed now; the quantum-level damage done by her previous two Saddle Point journeys repaired. Once more, her full humanity had come crowding in on her.

Ben held her, as the cool light of different suns broke over the flower-ship.

The Saddle Point for this system turned out to be within the accretion disc of the black hole itself.

The view was astonishing. Ben and Madeleine clung to the windows, as the disc's smoky light washed over the scuffed metal and plastic surfaces of their habitat.

The accretion disc swirled below the flower-ship, like scum on the surface of a huge milk churn. The black hole was massive, Ben learned — meters across. Matter from the accretion disc tumbled into the hole continually; X-rays sizzled into space.

The flower-ship descended into the accretion disc.

The disc foreshortened as the ship approached. Eventually Ben could make out detail — not individual fragments, but clumps of varying density in the ruddy swirl. The hole itself with its bright surroundings sat like a dome at the heart of the disc; long shadows swept towards the flower-ship, cast by the scurrying clumps.

Ben stared into his monitors. "There's such a lot of detail, such structure," he said. "For an astrophysicist, this is the dream of a lifetime. It's like a smeared-out world out there. I could spend thirty years analyzing this data."

They fell into shadows a million miles long. A crimson band swept upwards past the flower-ship. Ben caught a glimpse of detail, a sea of gritty rubble.

The disc collapsed to a grainy streak across the stars; pea-sized pellets spanged off *Ancestor's* hull plates.

Then they soared below the plane of the disc.

Nemoto translated for the Chæra. "The Chæra can see the disc unfolding," Nemoto said. "What a spectacle. I am the envy of generations."

"Touching," said Meacher drily.

Soon, the monitors mounted on the *Ancestor's* science platform started to collect data on hydrogen alpha emission, ultraviolet line spectra, ultraviolet and x-ray imaging, spectroscopy of the active regions, sodical light, spectroheliographs. Ben took charge now, and training and practice took over as they went into the routine tasks of studying the hole and its disc.

Images of the hole built up, on various wavelengths. And Ben could actually see the location of the central object, a black hole, in visible light. Black hole physics had been the subject of Ben's doctoral dissertation. To visit such an object, a mere thirty light years from Earth — and to return within a mere few decades — was a remarkable privilege.

"Looking at a black hole," remarked Madeleine, "is like having part of your optic nerve burnt out."

Mini black holes were typically the mass of Jupiter. They were too small to have been formed by processes of stellar collapse. They had been created a millionth of a second after the Big Bang, baked in the fireball at the birth of the universe. At that point, the universe consisted of a hot soup of free quarks. As the fireball expanded, the strong nuclear force switched on, and groups of quarks began to freeze out into baryons, such as protons and neutrons. During this transition, the density of turbulent clumps of matter in the fireball became gigantic — enough to trigger a spontaneous collapse to black holes ...

"The existence of mini black holes is an old idea. The real surprise," said Virtual Nemoto, "was the discovery, by the Princeton, of life, infesting the accretion disc of a mini black hole. The Chæra. It seems that this black hole is God for the Chæra."

"They worship a black hole?" Madeleine asked.

"Evidently," said Virtual Nemoto impatiently. "If the translation programs are working. If it's possible to correlate concepts like 'God' and 'worship' across species barriers. Who cares?"

"And this," Madeleine said, "is what they want to talk to?"

Ben looked away from the blind spot.

There was something there the instruments, designed for astrophysics, couldn't tell them about.

In the central glare of the accretion disc, there was something surrounding the black hole, embedding it.

The black hole was set into a net-like structure that started just outside the Schwarzschild radius, and extended kilometers.

The structure was a regular solid of twenty triangular faces, the most complex regular solid possible in three dimensions.

"It's an icosahedron," he said. "An artifact."

Madeleine Meacher had suffered disturbed dreams about icosahedral artifacts.

"Oh, shut," said Madeleine.

A video monitor showed the Chæra thrashing in its tank.

Nemoto said, "Time to pay the fare. Are we ready to speak to God?"

Madeleine turned to the monitor, and stared into Nemoto's wizened, monkey-like face. "Even after this, you want to go ahead?"

"Why not?"

Madeleine turned to Ben; he shrugged. "It is not our mission," he said.

Ben couldn't make out any framework within the icosahedron, or any reinforcement for its edges; it was a structure of sheets of almost transparent film, each triangle hundreds of meters wide. The glow of their own flower-ship's hungry ranscoop shone and sparkled from the multiple facets.

It was a jewel-box setting for a black hole.

Madeleine, veteran of two previous missions, seemed stunned.

"It must be bloody strong to maintain its structure against the hole's gravity, the tides," she said. "It seems to be directing the flow of matter from the accretion disc into the event horizon. And, my God, it looks so obviously artificial ..."

"It is beautiful," said Ben. "The largest possible Platonic solid. Triumphant three-dimensional."

Nemoto said, "The mission."

Madeleine worked a console to unship the first of the old X-ray lasers; the monitors showed it unfolding from its mount like a shabby flower.

The laser was cast free from the flower-ship, which swept away, to a safe distance. It dove into the heart of the system, heading for its closest approach to the hole.

Madeleine said, "Three, two, one."

There was a flash of light, pure white, which shone through the Service Module's ports.

Various instruments showed surges, of particles and electromagnetic radiation. The laser's fission-bomb power source had worked.

The shielding of *Ancestor* seemed adequate.

The X-ray beam washed over the surface of 'God'.

The net structure stirred, like a sleeping snake, Ben thought.

The Chæra quivered.

Ben watched the false images. "Madeleine. Look."

The surface of 'God' was alive with motion; the icosahedral netting was bunching itself around a single, brooding point, like skin crinkling round an eye.

"I can give you a rough translation from the Chæra," said Nemoto. "She heard us."

Madeleine asked, "She?"

"If I have succeeded ... Then I will be the most honored of my race. Fame — wealth — my choice of mates —"

Madeleine laughed. "And, of course, religious fulfillment."

Ben monitored a surge, of X-ray photons and high-energy particles, coming from the hole — and the core at the center of the crinkled net exploded. A pillar of radiation punched through the accretion disc like a fist.

"My God," breathed Madeleine. "What was that?"

The Chæra wobbled around its tank.

"God is shouting," Nemoto said. She looked out of her monitor tank at Ben, her wizened Virtual face creased with doubt.

The beam blinked out, leaving a trail of churning junk.

The Chaera inhabited the accretion disc's larger fragments.

Chaera were everywhere, spinning like frisbees over the surface of their worldlets — or whipping through the accretion mush to a neighboring fragment — or basking like lizards, their undersides turned up to the black hole.

Something twinkled. On top of a stubby mountain which poked out of a big fragment, the Chaera were constructing a huge, crude mirror facing 'God'.

Madeleine said, "It's —"

"Beautiful," said Ben. "Yes, I know."

The Chaera infused the accretion disc, a horde of ghostly platelets living, loving and dying.

"Let me get this straight," Madeleine said. "The Chaera have evolved to feed off the X-radiation from the black hole ... from 'God'. Is that right?"

"So it seems," Nemoto said. "God provides us in all things."

"The Chaera look too primitive to have constructed that artifact," Madeleine said. "After all, it manipulates the hole's gravity well. Or at least the infall of matter into the event horizon. A neat trick. Maybe they are even haling the X-radiation pulse."

"Perhaps the central artifact is much older than the Chaera. Perhaps the Chaera evolved here after its construction. Perhaps, in fact," she speculated, "this is the first Builder artifact we have encountered."

Ben said, "So the Chaera try to — about — to 'God'. Some of them pray. Some of them build great artifacts to sparkle at Her. Like worshipping the Sun, praying for dawn. They're trying to stimulate X-radiation bursts. All the Priors have done is to sell them a more effective communication mechanism. A better prayer wheel."

"But it's more than that," Madeleine said. "The X-ray laser delivers orders of magnitude more energy into the artifact than anything the Chaera could manage. It looks as if the energy of the pulse they get in return is magnified in proportion. Perhaps they don't understand what they're dealing with, here."

The beam from 'God' had left a track of glowing debris through the accretion disc, like flesh scorched by hot iron. The track ended in a knot of larger fragments.

"Look at that," said Madeleine. "One of these worldlets got it in the face."

In the optical imager, jellyfish bodies drifted like soot flakes.

Saliva gathered in Ben's mouth.

Nemoto said: "God's holy shout shatters worlds."

"Yeah ... Listen, let's take a break."

In its tank, the Chaera drifted like a Dahl watch.

Madeleine said, "Nemoto, we can't go ahead with the second laser."

"Listen — they know the score," Nemoto said blandly. "The Chaera have disturbed the artifact a few times in the past, with their mirrors and smoke signals. Every time it's killed some of them. But they need the eggs. And besides, think about the bigger picture. Who cares about the Chaera? Think what this technology — the manipulation of black holes, for God's sake — could mean to the Priors."

"Tell me."

"What if they did get hold of one of our gas giants? Saturn, or Jupiter ..."

"Why should they?"

"Perhaps to stellyify it."

Madeleine frowned. "Is that what it sounds like? Even Jupiter is too light to generate the pressures in its core for fusion —"

"Not if you throw in a mini black hole."

That caught Madeleine's breath. "You think big, Nemoto."

She grinned like a witch. "Maybe it's because I'm so damn old. And the Priors think this way. Somebody has to, on our side."

"That's not all," she said. "A stellyified planet would grow steadily brighter. In half a billion years, its luminosity would rival the Sun's, and start causing serious problems in the Inner System. And a hundred million years after that, when the last of the matter disappeared into the hole, there would be a kind of miniature nova ..."

"Long timescales."

"We've no evidence to suppose the Priors don't work on timescales

like that. And maybe they like the idea of a Jupiter-sized explosion, half a billion years down the line. Maybe they just don't care what happens to us and our worlds. This is just a scenario, Meacher. There are worse ..."

"Look, Meacher, the Priors are like termites. We are at war with termites. They build, build, build. But if we confront them, they back down. For a while, anyhow."

"Right. Which is why you want to send the Aborigines, Ben's people, to Triton. A colony, right on the border of the Solar System. The Golan Heights."

"Yes. We've already lost Pluto, but ... It will probably work. Face off the Priors. For now. In the longer term —"

"In the longer term, we're at war."

Ben now understood why Nemoto had thought it was important that humans be sent to study this object with the Priors.

"Perhaps this icosahedron, this remarkable Builder technology," Ben said, "could be used to move a black hole."

Madeleine frowned. "A black hole rocket. A resource for stellyifying." "Maybe."

Madeleine said, "And we should sacrifice the Chaera for this piece of speculation?"

"It is their choice, Madeleine," Ben said gently. "Their culture."

Nemoto quoted the Chaera. "It knows we're arguing here. 'Where there are prophecies, they will cease. Where there are tongues, they will be stilled; where there is knowledge, it will pass away. For we know in part and we prophesy in part, but when perfection comes, the imperfect disappears.'"

Ben nodded. "It seems they're prepared to die to attain what they believe is perfection."

"Who's the philosopher?" Madeleine asked sourly. "Some great Chaera mind of the past?"

Ben smiled. "Actually, it was quoting Saint Paul."

Both Nemoto and Madeleine looked startled.

Soon it was time to talk to the icosahedral God again.

The second X-ray punch laser was launched.

After studying the records of the last encounter, Ben had learned how the configuration of the icosahedral artifact anticipated the direction of the resulting beam. Now, he watched the core squirt into focus. The killer beam would again lance through the accretion disc —

— and, this time, right into one of the largest of the Chaera worldlets.

He told Madeleine.

Millions of Chaera were going to die.

"Meacher," Nemoto warned, "don't meddle. If you meddle, the Priors may not allow human passengers on future missions. And we won't learn about possibilities like this. We'll have no information; we won't be able to plan ... Besides, the laser is already deployed. There's nothing you can do about it."

The core trembled.

Madeleine said, "Oh, damn it —"

"What are you doing?"

"Help me. Go down to the FGB Module. Get everything out of there you think we have to save."

Ben thought it over.

"I'll trust your instincts, Madeleine."

"Good," she said. "Now, I have a little figuring to do."

She rushed to the instrument consoles.

Ben pulled together their research materials as best he could: the biological and medical samples they'd taken from their bodies, data cassettes and diskettes, film cartridges, notebooks, results of the astrophysical experiments they had run in the neighborhood of the black hole. There was little personal gear in here, as their sleeping compartments were in the Service Module.

He pulled everything together in a spare sleeping bag, and hauled it all up into the Service Module.

He glanced down through the FGB Module's big picture window, at smoky accretion-disc light.

The flower-ship skimmed past the flank of 'God'; the netting structure swarmed around the pulsing core.

The Chaera thrashed in the tank.

Ben pulled down the heavy hatch between the modules—it hadn't been closed since the flower-ship had swept them up from the surface of Earth's Moon—and dogged it tight.

Madeleine was running a hasty computer program; from a distance he couldn't see the details.

"What are you doing?"

"Remember the drill for a pressure hull breach?"

"Of course. But —"

"Three, two, one," said Madeleine.

There was a clatter of pyrotechnic bolts.

"What —"

"I severed the FGB," Madeleine said. "The explosive decompression should fire it in the right direction. I hope. I didn't have time to check my figures, or verify my aim —"

Bits of radiation spat out like javelins as the core began to open.

Nemoto thundered, "What have you done, Meacher?"

Ben saw the FGB Module for one last instant, its battered, patched-up form silhouetted against the gigantic cheek of 'God'. In its way it was a magnificent sight, Ben thought: a stubby twentieth century human artifact orbiting a black hole, thirty light years from Earth —

— and then the core opened.

The FGB Module got the X-ray pulse right in the rear section. Droplets of metal splashed across space... But the massive Russian construction lasted, long enough to shield the Chaera worldlet.

Just as Madeleine had intended.

The core closed; the surface of the net smoothed over. The slowly-cooling stump of the FGB Module drifted around the curve of the hole. Ben saluted it silently.

"The journey back is going to be cramped," said Madeleine.

The Saddle Point gateway hung before them, anonymous, eternal, indistinguishable from its copies in the Solar System, visible only by the reflected light of the accretion disc.

"You saved a world, Madeleine," Ben said.

"But nobody asked you to," Virtual Nemoto said, her voice tinny. "The Chaera are still protesting. 'Why did you hide God from us?' ..."

Ben shrugged. "God is still there. I think all Madeleine has done is provide the Chaera with a little more time to consider how much perfection they really want to achieve."

"Meacher, you're such a fool," Nemoto said.

"I wonder if there was a Dreamtime on Triton," Madeleine said.

"Perhaps. Or perhaps this is the Dreamtime. Triton is an empty land, after all. Perhaps we will become the Dreamtime Ancestors for Triton ..."

"Let's go find out," she said.

The pink glow of transition flooded them, and there was an instant of searing pain.

Triton Dreamtime

P A R T 3

THE SPACESHIP *GURRUTU* ENTERED A LOPING ELLIPTICAL orbit around Triton, largest of the twelve satellites of Neptune.

Many emigrant transport ships, of the same design as *Gurrutu*, still orbited Triton. Others had been driven to the surface, for raw materials. Triton's surface, of battered, pink-streaked water ice, was marked by a single, yellow, man-made beacon: at the site of Kasyapa Township.

Madeleine Meacher and Ben Roach suited up, and descended in a small, open, spidery lander.

Meacher stepped onto the surface of Triton.

Under her boots there was a frost, of methane, nitrogen ice and sunlight-processed organics, that looked pinkish in the light of her helmet lamp. Her suit told her that the cold was intense, two hundred and thirty degrees below zero. The suit's insulation was good, but enough heat leaked to send nitrogen clouds hissing around her footsteps, and where she walked she burned craters in the ice. She felt buoyant in the low gravity. She dropped a hammer and counted; it took two seconds to reach the surface from waist height.

The Sun was a bright star, the light it cast a mere thousandth of Earth's daylight, barely enough to cast her shadow on the ice. There was air here, a layer of nitrogen, but it was thin, the organic haze it supported barely dimming the starlight.

Neptune was huge in the sky. The planet was four times the size of Earth, and so close to Triton it appeared as large as fifteen of Earth's full Moons, strung across the sky together. Neptune's austere blue clouds, with their rotation-stretched streaks of white and grey, made for a startlingly Earthlike appearance. She saw shadows under the highest clouds, of bright methane crystals.

She could even make out Neptune's thin, faint rings.

Ben Roach pointed to the sky. His eyes were sharper than Meacher's, and she had to use her visor's enhanced optics.

It looked like a star, perhaps surrounded by a diffuse disc of light. It was a Prion engineering convoy: Eetie ships, built of Pluto rock and ice, en route to Triton.

Through a Saddle Point gateway, Madeleine Meacher and Ben Roach had traveled together to the stars.

They returned after six decades, to the year 2198. They themselves had aged less than a year. The Prion flower-ship which had carried them dropped their hab module, called *Dreamtime Ancestor*, into orbit around Earth's Moon.

Nemoto, their sponsor, was waiting to greet them. She appeared as a third figure in the cramped, scuffed environment of *Dreamtime Ancestor's* Service Module, a digital ghost coalescing from a cloud of cubical pixels. Nemoto was small, shrunken, her face a leathery mask, as if with age she was devolving to some earlier proto-human form.

To Meacher, six more decades out of her time, the projection was impressive new technology. She passed a hand through Nemoto's body; pixels clustered like butterflies.

Meacher said, "I don't believe you're still alive." She was telling the truth. It was more than two centuries since Nemoto's birth. Maybe this was just a synthesized Virtual projection. Or maybe, she speculated, Nemoto had achieved ultimate immortality, downloading herself — or a copy of herself — into some other receptacle. Meacher, in fact, had wondered sometimes if Saddle Point teleport technology could be used to achieve just that end.

Nemoto said, "I don't care what you think. Anyway, you'll never know." She glanced around. "Where's the FGB Module? ... Oh."

Meacher had sacrificed the FGB Module, the second major portion of their improvised craft, when she had intervened in the affairs of the race called the Chasera.

Evidently Nemoto had just downloaded some summary of their mission.

She glared. "You have to meddle, don't you, Meacher? ... Anyway, it's over. You have to go to Triton," she said without ceremony.

"That was the deal," Meacher acknowledged.

"A fleet of Prion flower-ships and factories, manufactured from Pluto resources, is moving in."

"As you suspected they would."

"As I suspected."

"Where?"

"Towards Triton itself."

Meacher felt Ben Roach's hand slide into hers.

Sixty years ago, when Roach and Meacher had left, his people — a group of Aborigines called the Yolgnu, from central Australia — were preparing to depart for Triton, ice moon of Neptune, to found a colony there.

Nemoto thought the Prion — the race who had first come through the Saddle Point gateways — were intending to encroach on the resources of the inner Solar System. By 2134 they had already been on Pluto, and were, Nemoto believed, intending to move in further.

Nemoto intended to establish the colony on Triton to face down the Prion, to stall further encroachment. And the Yolgnu wanted to establish their colony so they could, for the first time since the Europeans landed in Australia, build a world of their own.

Now, it seemed, a confrontation was approaching. With the Yolgnu in the path of the Prion.

The Nemoto projection glowered at Meacher. The intensity of emotion its pixel-sketch of a face was able to convey was, Meacher thought, impressive.

"But what," Meacher said, "are we supposed to do when we get there, Nemoto?"

Nemoto said, "We must stop the Prion. We have time to plan. Anyway I expect you to do what you always do, Meacher."

"What?"

"Improvise."

On Triton, the Yolgnu had established their home in the basin of a shallow, circular depression called Kasyapa Caves. This had a smooth, bowl-like floor, easy to traverse. Kasyapa was on the eastern edge of Bubembe Regio, a region of so-called cantaloupe terrain. The

depression had two rims, a complete inner wall, and an outer circle that abutted against a long ridge called Slide Sault.

Kasyapa Township had been established in a branching cavern blown into the deep ice. A thick layer of water ice and spacecraft hull-metal shielded the colonists from the radiation flux of Neptune's magnetosphere.

Corridors had been dug hastily into the ice and pressurized: the wall surface — Triton ice sealed and insulated by a clear plastic — was smooth and hard under Meacher's hand.

Ben Roach left her. He was swallowed up by the family he had left behind, two whole new generations of nephews and nieces and grand-nephews and grand-nieces.

And there was, of course, Marie.

The people of Kasyapa were welcoming, but she found they were locked into tight family groups, like, she told Ben, systems of satellites. Meacher immediately knew it was impossible for her to break into any of these groups; the Yolgnu were kind, but she would always be an outsider here.

The people were thin, she thought, their skins pale. Malnourished.

She was given a cabin, a crude cube dug into the ice. She moved her few personal belongings into the cabin — book chips, a few clothes, Virtuals of a star called an X-ray burst, a black hole accretion ring. Her things looked dowdy and old, out of place. And here, in this cavern of close-knit families and warm gurrutu kinship, the images from beyond the Saddle Points seemed gaudy and absurd.

A waste of her life.

They hadn't been permitted to return to Earth. After sixty years, and after what had happened on Earth, their affairs there had little meaning anymore.

Nemoto had prepared a ship in lunar orbit for them, to take them to Triton. It was one of the colony craft which Nemoto had used to transport two hundred Aboriginal settlers to Triton. It had been christened *Gurrutu*, for kinship.

Gurrutu had been improvised from the liquid-propellant core booster of an Ariane 12 rocket; it was a simple cylinder, with the fuel tanks inside refurbished and made habitable. Big, fragile-looking solar-cell wings had been fixed to the cylinder — though reconditioned fission reactors would provide power in the dimly lit outer reaches of the Solar System. There was a docking mount and an instrument module at one end of the cylinder, and a cluster of ion rockets at the other.

Meacher inspected the improvised transport with dismay.

The *Gurrutu's* bank of ion thrusters needed much refurbishment. In each thruster the propellant — of ionized xenon, atoms stripped of electrons and left positively charged — was hurled away from an electrode and accelerated by being passed through a series of grids at different potentials. The ion beam was charge-neutralized on leaving the spacecraft, to avoid an excessive deficit charge building up on the spacecraft.

The xenon's exhaust velocity was very high — much higher than with chemical technology — and the mass depletion very low. Thus, the ion thrusters were very suitable for missions of long duration, missions measured in years, to the outer planets and beyond. And they worked; they had ferried the Yolgnu to Triton.

But this was old technology. The newest Japanese fusion drives, powered by lunar helium-3, were much more effective. She checked over the suite of fission reactors. These, characteristically for a Nemoto project, were also old technology: heavy Soviet-era antiques, of a design called Topaz.

Each Topaz was a clutter of pipes and tubing and control rods set atop a big radiator cooling cone of corrugated aluminum. The whole thing was perhaps five meters tall, a high temperature thermal reactor using zirconium hydride for its moderator. The reactors were positioned so that the big radiator cones, and the water tanks of the *Gurrutu* itself, shielded the habitable compartment from the core's radiation.

The Topaz had first flown in space in 1988. It had been superseded, by technologies like the Japanese helium-3 fusion designs, for a hundred and fifty years. It was dirty, unreliable and dangerous.

Ben Roach said that the Topaz looked like something of its era, that its big radiator cone looked like a hollowed-out Mercury spacecraft.

That made Meacher see the craft in a different light. Roach was right, on a deep level. *Gurruwa*, improvised as it was, could have been built in the twenty-first century. Even the twentieth.

But it hadn't been.

With such equipment, Nemoto was attempting feats few of the power brokers in the Solar System would consider.

The Japanese and Russians were still focusing their attentions on the Moon and Mars, while the Chinese skinned around the asteroid belt. But the asteroid belt was centered around a radius three Astronomical Units from the Sun, just three times Earth's distance.

Neptune, Nemoto's goal, was ten times as far.

Even now, at the end of the twenty-second century, only a handful of humans — most of them Westerners — had traveled beyond the orbit of Jupiter. Nemoto's unlikely exodus of Yolgou was the first attempt to establish a large-scale colony beyond the asteroid belt.

But Nemoto's projects were, as ever, underfunded; few in positions of authority had ever credited her vision of the approaching conflict with the Prión, and only Meacher thought bleakly, loses like herself were attracted to serve in Nemoto's lashed-up craft, her shoestring missions.

Still, for Meacher, the difficulties went deeper than that.

Gurruwa was characteristic of human spaceflight, she thought. A stream of ghastly, dull details, of failing machines and lashed-up solutions.

The main habitable area of *Gurruwa* was the big hydrogen tank, with the smaller oxygen tank used for storage. There was a fireman's pole running the length of the hydrogen tank, up through a series of mesh floor-partitions to the instrument cluster. The instrument cluster had four wide solar arrays fixed to it, and carried a battery of science experiments and sensors.

Forty people, including children, had lived in this hydrogen tank, for the five years it had taken *Gurruwa* to reach Neptune: eating hydroponically grown plants, recycling their waste, trying not to drive each other crazy. The tank had been slung with hammocks and blankets, little nests of humans seeking privacy. Three children had been born in this windowless cavern-shum. All of that had been cleaned out now, but still Meacher found evidence of the tank's former purpose: scratches on an aluminum bulkhead that recorded a child's growth, the image of a favorite uncle tucked into the back of a storage cupboard.

The *Gurruwa* was decades old, and showing its age.

The toilets never seemed to vent properly. The old bird was a chorus of bangs, wheezes and rattles when they tried to sleep in it. The solar panels had steadily degraded, and despite the replacement of some units over the years, there was never enough power around, somehow, even this close to the Sun. Meacher soon tired of half-heated meals, and lukewarm coffee, and tepid bathing water.

She thought of the Prión flowerfish which had carried her, three times now, to the Saddle Point radius and beyond, to the stars jewelled, perfect, faultless.

While Meacher worked, the Moon slid liquidly past the windows of the *Gurruwa*.

In the caverns of Kasyapa, a CELSS farm — CELSS, for closed environment life support system — had been improvised from a couple of old Ariane liquid oxygen tanks.

Marie Roach showed Meacher the farm.

There were racks of plants here. The racks were thick, with fat baths of nutrient solution flowing beneath them. Fluorescent tubes were poised above each of the racks, flooding the place with a cool white light, and bundles of fibre-optic cables brought light to the darker corners of the farm. The racks were immersed in pipes and cabling and sensors, and there was a constant hiss of fans and extractors, a warm gurgling of fluids through the pipes. There was a gap down the center of the racks, just big enough to admit a human.

As she closed the hatch behind her, Meacher felt an immediate sense of coziness, of warmth. The pressure was high in here, the

air warmer and more humid. The glow of the banks of lights was warm on her face, and the air seemed thick and full of the smell of chlorophyll, of growing things; it was like being within some immense greenhouse.

Plants, green and spindly, strained upwards towards the lights, from the plastic surfaces of the racks.

The plants were wheat and rice, for calories, starch and protein; white potatoes for carbohydrates, Vitamin C and potassium; soybeans for protein and amino acids; peanuts for protein and oil — although the peanuts were difficult to grow and harvest — lettuce for vitamin A and vitamin C. But for variety there were also peas, broccoli, winged beans, and onions.

Wheat was the staple. They got a crop every sixty days. They had ovens, so they could make their own bread. The warm scent of it filling the air of Kasyapa was one of the most pleasing elements of the colony, Meacher thought.

Marie's main job today was to pull out plastic irrigation nozzles from a couple of the racks, which had become clogged, and she began to work on the affected tray.

"... I miss Earth," confessed Marie. "I spent years in low Earth orbit, and there I missed Australia, Framlingham. Now, I miss having that huge sky-bright skin below me all the time, complex and dazzling, throwing soft, diffuse light into the ship. I miss having home so close."

Marie was a small, compact woman, her movements patient and precise. She was over eighty years old, but, thanks to telomerase rejuvenation treatments, might have been forty. She had been just twenty when Ben had departed for the Saddle Point. They had been separated for years before that, as he worked at Nemoto's ground station at Koorou, she on the transport ships in low Earth orbit. She had waited for him, single-minded.

She knew about his relationship with Meacher. She was not concerned, because she knew such things were inevitable, even necessary, in a separation that crossed generations. She herself had taken lovers, even an informal second husband. The ties of *galaxy and alchemy* were, she said, too strong to be broken by mere time and space.

Meacher liked her.

Marie said, "I am, I realize belatedly, a true creature of Earth. We humans just aren't designed to be out here, in all this emptiness, with only cold moon ice around us."

"No," said Meacher. "No, we aren't."

"And so I spend as much time as I can afford here, in this little bubble of light and life. I love to work here," said Marie. "The feel of the leaves of the little pea plants between my fingers, the soft scents, and the way I can blow carbon dioxide over them, feeding them gently."

Growing crops and baking bread, on a moon of Neptune.

But, Meacher recognized, the people here were slowly starving, their farm and water and air reclamation systems gradually breaking down.

After a month, Meacher had been satisfied that the *Gurruwa* was ready to leave lunar orbit.

The big, corroded solar panels swivelled to capture the sunlight, and the ion thrusters sighed to life. The push of the thrusters was gentle, although it would be steady; Meacher found herself floating, with dreamlike slowness, towards the mesh floors of the hydrogen tank.

Gurruwa could not hurl itself directly out of lunar orbit. Instead it had to spiral slowly, building up momentum, climbing out of the Moon's shallow gravity well.

Meacher and Roach, clinging to each other, looked back at Earth and Moon.

Earth was swollen and blue-white, rotating slowly.

The blinding white office swept down from both poles, encroaching towards the equator. The shapes of the northern continents were barely visible, under the huge frozen sheets. The colors of life, brown and green and blue, had been crowded into a narrow strip around the equator.

Disc-shaped highlights gleamed from the ice, tracking steadily.

They were the lights cast by solettas, orbiting mirrors hurling the Sun's heat at the encroaching ice. The solettas had been manufactured on the Moon, by Kawasaki Heavy Industries. And Meacher could see the glow of huge fusion plants, powered by lunar helium-3, working to keep the ice from the old cities of the north: London, New York, Moscow.

Induced into instability by the forty-thousand-year explosion of human activity, Earth's ecosphere had, during Meacher's long absence, almost collapsed into a permanent Ice Age: a climatologically stable state called *White Earth*, with all the sunlight reflected back to space by the ice. Maybe that disaster could still be averted, but only with the aid of ugly, heavy-handed ecological management, much of it directed from space.

The planet was visibly wounded.

Meanwhile, much of the Moon glowed green and blue, the colors of life and humanity.

The Japanese had peppered the great craters — Copernicus, Eudoxus, Gassendi, Fracastorius, Tsiolkovsky, Verne, many others — with domes, enclosing a freight of water and air and life. Landsberg, the first large colony, remained the capital. The domes were huge, the crests of some of them reaching two kilometers above the ancient regolith. They were hexagonal-cell spaceframe structures supported by huge, inhabited towers. Already, covered roads and linear townships connected some of the domes, glowing lines of light over the mare.

The Japanese, they boasted, planned to extend their structures until the entire surface of the Moon was glassed over, in a world-house. It would be like an immense arboretum, with a continuously managed biosphere.

This was paraterraforming: the conversion of huge enclosed tracts of barren Moon to living, breathing soil.

Kawasaki-forming, Nemoto called it.

As Earth and Moon receded, it seemed to Meacher that they were at last becoming twins, the green patches on the Moon shining in the newly brilliant Earthlight.

The bulk of humanity still lived on Earth, but as an economic and political power, Earth's significance was diminished by the environmental catastrophe. The center of gravity of humanity was moving outwards: to the Japanese Moon, to Mars, to the asteroids.

It was said that Kawasaki Heavy Industries, with their monopoly on lunar helium-3, had become a more significant economic force than any nation on Earth. It was also rumored that Kawasaki had entered into some unholy alliance with the Prion. That they had sold out the rest of mankind. Not even Nemoto had firm evidence for that, however.

Though Earth's population lived in straitened conditions, for the leading edge of humanity it was a time of expansion, of growth, even optimism.

A Golden Age.

Nemoto, and those who followed her, dismissed this.

As long as the Solar System was contained by a shell of Prion activity, by the resources of an alien species, humanity's future was in grave danger, Nemoto said.

Meacher and Roach took a surface rover, a big balloon-tired bubble, and toured Triton.

Human activities had barely touched the surface, beyond a couple of kilometers from Kasyapa Township. Soon the rover's tires were digging chevron tracks into virgin nitrogen frost.

The surface of Triton was the crust of a frozen ocean, of water ice, which overlaid a core of silicate rock. Triton was a world of ices, the water core overlain by nitrogen and methane. Much of the northern hemisphere was covered in snow as bright and white as if this was the Antarctic. To the south, there were layers of material, with colors ranging from pink to brown, that was even brighter than the snow fields of the north.

Meacher and Roach stopped for samples.

The snows of nitrogen, methane and heavier hydrocarbons had been irradiated by the Sun's ultraviolet light, and by electrons trapped in Neptune's magnetic field. The irradiation had turned the snows to

complex, reddish sediments. When the spring came the snows evaporated, but the sediments were left behind.

Thus, much of Triton was coated with billions of years of organic sediments.

The geology was evidently complex. Sculpted into the ice there were hills up to a kilometer high. There were wide cryovolcano mouths, impact craters — once flooded, then refrozen — and extensive plains, covered by nitrogen snow.

As they drove, Meacher spent long hours watching Neptune.

She learned to recognize the three semi-permanent features of the cloudy atmosphere: the Great Dark Spot — a feature as large as Earth — the white patch called the Scooter, and Dark Spot Two with its bright core. The cloud belts rotated rapidly, and at different speeds. The Great Dark Spot took eighteen hours to orbit Neptune, but the cloud structures near it evolved visibly in four or five hours. It was rapid enough that she could follow the viscous swirl of the features across Neptune's milky blue face.

They visited a pole, with its cap of nitrogen ice. But this hemisphere was entering its forty-year spring, and the polar cap was evaporating: thin winds of nitrogen were transmitting the cap material to the other pole.

They camped here, near the pole, on the fringe of interstellar space. They made EVAs, gathered more samples. Meacher saw cirrus clouds of nitrogen ice crystals.

But the pole was a dangerous place to walk.

They saw the evidence of geysers: dark streaks across the land, tens of kilometers long, like the remnants of gigantic roads. Sometimes, Meacher learned, nitrogen gas polluted with organics got trapped in pockets, like frosty greenhouses, under the ice. When this happened, sunlight heated up the gas, and eventually there was an explosion — a plume of dark substrate material, rising ten kilometers into the thin atmosphere, streaming westward.

In some regions the terrain was disfigured; from orbit, the land looked like the surface of a cantaloupe melon, pocked by clusters of craters each a few kilometers across. This was difficult and dangerous terrain too, because the 'craters' were actually collapsed bubbles in the ice.

Triton was remarkable, in the present day. Perhaps more so, in the deep past.

Once, Meacher learned, Triton's world-ocean had been liquid.

Triton used to be an independent body: a planet, following its own orbit around the Sun. Then it was captured by Neptune. Perhaps Triton was slowed by grazing the atmosphere of Neptune itself. Perhaps it fell into the primordial nebula from which Neptune and its satellites formed. Or perhaps it collided with another moon.

Triton entered orbit — elliptical, inclined, and retrograde — going in the opposite direction from Neptune's spin, and the rest of the satellite system. Huge solid-body tides were raised in Triton, melting the surface. The tides from Neptune gradually made the orbit circular, and the tidal energy heated Triton.

There were liquid seas on Triton for a hundred million years.

Triton refroze to a billiard ball smoothness, the primeval impact craters it had suffered after its formation washed away.

It was an intriguing idea, Meacher thought. There had been liquid water here, and organic material. Perhaps if she could look within the ice beneath her feet, she mused, she might see traces of native life, embedded in the ice. If there were still liquid pockets — supercooled perhaps, under great pressure — it was even possible the life was still functional, still evolving, perhaps it had found ways to survive the endless winter, using supercooling effects, natural antifreeze chemicals: strategies employed by life forms in Earth's own polar regions.

Nobody knew. No one was looking. The colonists of Kasyapa Township had little excess capacity to spare for science.

Triton was, as Nemoto had told them, probably the Solar System's most remote significant and accessible cache of water.

Nemoto told them that Robert Goddard — the American rocketry pioneer — had proposed, in a paper called "The Last Migration", that Triton could be used as an outfitting and launching post for inter-

Continued on page 90

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WHAT IS WRONG WITH THIS PICTURE?

Colonel Walker Bryant is standing at the door of the Department of Ultimate Storage. He is smiling, and he is carrying a book under one arm.

Answer: *Everything* is wrong with this picture. Colonel Bryant is the man who assigned (make that consigned) me to the Department of Ultimate Storage, for reasons that he found good and sufficient. But he never visited the place. That is not unreasonable, since the department is six stories underground in the Defense Intelligence facility at Bolling Air Force Base, on a walk-down sub-basement level which according to the elevators does not exist. It forms a home for rats, spiders, and me.

Also, Walker Bryant never smiles

THE LADY

BY CHARLES SHEFFIELD

Illustration by Rick Berry

VANISHES

unless something is wrong, and Walker Bryant never, in my experience, reads anything but security files and the sports pages of the newspaper. Colonel Bryant carrying a book is like Mother Theresa spotting an AK-47.

"Good morning, Jerry," he said. He walked forward, helped himself to an extra-strength peppermint from the jar that I keep on my desk, put the book next

In a secret government installation, hope is only the first thing to turn invisible.

to it, and sat down. "I just drove over from the Pentagon. It's a beautiful spring day outside."

"I wouldn't know."

It was supposed to be sarcasm, but he has a hide like a rhino. He just chuckled and said, "Now, Jerry, you know the move to this department was nothing personal. I did it for your own good, down here you can roam as widely as you like. Anyway, they just told me something that I thought might interest you."

When you have worked for someone for long enough, you learn to read the message behind the words. *I thought might interest you* means *I don't have any idea what is going on, but maybe you do.*

I leaned forward and picked up the book. It was *THE INVISIBLE MAN*, by H. G. Wells. I turned it over and looked at the back.

"Are you reading this?" I wouldn't call Walker Bryant "Sir" to save my life, and oddly enough he doesn't seem to mind.

He nodded. "Sure."

"I mean, actually reading it — yourself."

"Well, I've looked through it. It doesn't seem to be about anything much. But I'm going to read it in detail, as soon as I get the time."

I noted that it was a library book, taken out three days before. If it was relevant to this meeting, Colonel Bryant had heard something that "might interest you" at least that long ago.

"General Atwater mentioned the book to me," he went on. He looked with disapproval at the sign I had placed on my wall. It was a quotation from Swinburne, and it read, "And all dead years draw thither, and all disastrous things." I felt it was rather appropriate for the Department of Ultimate Storage. That, or "Abandon hope, all ye who enter here."

"He's a bit of an egghead, like you," Bryant went on. "I figured you might have read *THE INVISIBLE MAN*. You read all the time."

The last sentence meant, *You read too much, Jerry Mocco, and that's why your head is full of nonsense, like that stupid sign on your wall.*

"I've read it," I said. But the meeting was taking a very odd turn. General Jonas Atwater was Air Force, and head of three of the biggest "black" programs, secret developments with their own huge budgets that the American public never saw.

"Then you know that the book's about a man who takes a drug to make him invisible," Bryant said. "Three of General Atwater's staff scientists were in the meeting this morning, and they swear that such a thing is scientifically impossible. I wondered what you think."

"I agree with them."

He looked crushed, and I continued, "Think about it for a minute and you'll see why it can't work, even without getting deep into the physics. The drug is supposed to change human tissue so that it has the same refractive index as air. So your body wouldn't absorb light, or scatter it. Light would simply pass through you, without being reflected or refracted or affected in any way. But if your eyes didn't absorb light, you would be blind, because seeing involves the interaction of light with your retinas. And what about the food that you eat, while it's being digested? It would be visible in your alimentary canal, slowly changing as it went from your esophagus to your stomach and into your intestines. I'm sorry, Colonel, but the whole idea is just a piece of fiction."

"Yeah, I guess so." He didn't seem totally upset by my words. "It's impossible, I hear you."

He stood up. "Let's go to my office for a while. I want to show you something — unless you're all that busy."

It depended on the definition of "busy." I had been browsing the on-line physics preprints, as I did every morning of the week. Something very strange was going on with Bose-Einstein Condensates and macroscopic quantum systems, but it was evolving too rapidly for me to follow easily. There were new papers every day. In another week or two there ought to be a survey article that would make the development a lot clearer. Since I had no hope of doing original work in that field, the reading delay would cost me nothing. I followed Bryant in silence, up, up, up, all the way to the top floor. *I want to show you something* sounded to me an awful lot like *Gothic!*, but I couldn't see how.

His staff assistants didn't react to my arrival. Colonel Bryant never came down to see me, but he summoned me up to see him often enough. It's a terrible thought, but I actually think the colonel likes me.

Worse yet, I like him. I think there is a deep core of sadness in the man.

We entered his office, and he closed the door and gestured me to a chair. At that point we could just as well have been in the sub-basement levels. So many highly classified meetings were held in this room that any thought of windows was a complete no-no.

"Lois Doherman," he said. "What can you tell me about her?"

What I could tell, and what I was willing to tell, were two different things. Bryant knew that I had been Dr. Lois Doherman's boss when she first joined the Agency and we were both in the Office of Research and Development. Since then she had gone up through the structure like a rocket, while I had, somewhat more slowly, descended.

"You know what they say about Lois?" I was stalling a little, while I decided what I wanted to say. "If you ever make a crack suggesting that she's a dog, she'll bite your head off."

Not a trace of a smile from Bryant. Fair enough, because it didn't deserve one.

"Academic record," I went on. "Doctorate from UCLA, then two post-doc years with Berkner at Carnegie-Mellon. She had twenty-eight patents when she joined the Agency. Lord knows how many she has now. Properties of materials and optics are her specialty. I don't know what she's working on at the moment, but she's the smartest woman I ever met."

I considered the final statement, and amended it. "She's the smartest person I ever met."

"Some might say you are not an unbiased source. Staff Records show that you dated her for a while."

"That was nearly a year ago."

"There's also a strong rumor that you two were sleeping together, though that is not verified."

I said nothing, and he went on. "It was outside working hours, and you both had the same clearances, so no one's worried about that. The thing is, General Atwater's staff thought you might know more than anyone else about her personal motives. That could be important."

"I don't see how. Her life and mine don't overlap any more."

"Nor does anyone else's. That's the trouble." And, when I stared at him because this was a message that I definitely could not read, "Lois Doherman has disappeared. One week ago. Sit tight, Jerry."

I had started to stand up.

SHE DIDN'T JUST DISAPPEAR FROM home, or something like that." He was over at the viewgraph projector and video station used for presentations. "On Tuesday, June 25th, she went to work in the usual way. She was on a project that needed a special environment, and the only suitable place locally is out in Reston.

Absolute top security, twenty-four-hour human security staff plus continuous machine surveillance. Only one entrance, except for emergency fire exits that show no sign of being disturbed. Anyone who goes into that building has to sign in and sign out, no matter how they are badged. Arrivals and departures are all recorded on tape.

"Sitting on the table in front of you is a photocopy of the sign-in/sign-out sheet for June 25th. Don't bother to look at it now" — I was reaching out — "take my word for it. Dr. Doherman signed in at 8:22 am, and she never signed out. Not only that, I have here the full set of tapes for arrivals and departures. The video-recorder is motion-activated, if you want to study the record, you can do it later. Here's the bottom line: there's a fine, clear sequence showing her arrival. There's nothing of her leaving."

"Then she must be still inside the building." That thought was terri-

tly disturbing, if Lois had been inside for a full week, she must be dead.

"She's not inside, either dead or alive," he said, as though he had been reading my mind. "This is a fairly new building, and Aitwater's office has exact detailed plans. There are no secret cubby-holes or places where someone could hide away. The whole complex has been searched four or five times. She's not in there. She's outside. We don't know how she got out."

"Nor do I."

Which actually meant, *All right, but why are you talking to me?* I guess that message-reading goes both ways, because Bryant said, "So far as we can tell, you are the last person with whom Dr. Doberman enjoyed a close personal relationship. I don't know if you can help, but I feel that you must try. As of ten this morning, sponsored by General Aitwater's office, you and I have access to three additional SCL clearances."

I shifted in my chair. SCL Special Compartmented Information. I had too many of those clearances already.

Walker Bryant turned on the viewgraph projector and put a transparency in place. "These briefing documents show what Dr. Lois Doberman had been working on at Reston. In a word, it's stealth technology in the area of imaging detection."

HE GLARED AT ME, AND ON CUE, I laughed. After **THE INVISIBLE MAN**, his final comment had all the elements of farce. The whole idea of stealth technology is to make the object difficult to see. But it's usually either primitive visible-wavelength stuff, like special paints that match simple backgrounds, or else it's the use of materials with very low radar back-scatter. Most systems use active microwave — radar — for detection, so that's where most of the effort tends to go. The B-2 bomber is a wonderful example of failed stealth technology, since at most wavelengths it's as visible as Rush Limbaugh. But that didn't stop it being built, any more than the fact that stealth technology doesn't work well in visible wavelengths would stop a barrel of money being spent on it.

This sort of thing was one big reason why Lois and I had parted company. Once you are really inside the intelligence business, you know too much ever to be allowed to leave. You are there as firmly and finally as a fly in amber, and like the insect, not even death will free you. You are not allowed to say that some classified projects are absolute turkeys and a total waste of taxpayer money, because the party line is that they have value. Opinions to the contrary, expressed to Lois in long middle-of-the-night conversations, had convinced me that I disagreed certainly fail my next polygraph (I didn't).

She disagreed with me. Not about the waste of money, which was undeniable, but about the possibility of escape. She said there must be a way out, if only you could find it. After dozens of arguments, in which she accused me of giving up and I accused her of useless dreaming, we had gone our separate ways; she ascending the management structure as though hoping to emerge from the top and fly free like a bird, me tunneling down deeper into the sub-basement levels like a blind and hopeless mole.

Had she found it, then, the Invisible Woman, the magic way out that would break all intelligence ties forever?

I couldn't see how, and the presentation was not helping. "What does fiber optics have to do with this?" I asked. That's what Walker Bryant had been putting on the screen for the past few minutes, while I was lost in memories. The latest viewgraph was a series of hand-drawn

curves showing how the light loss over thin optic cables could, thanks to new technology, approach zero. That would be useful in communications and computers; but Lois hadn't been working in either area.

He shrugged at my question. "Damned if I know what any of these viewgraphs have to do with anything. I was hoping you might be able to tell me. These are taken straight from Lois Doberman's work books."

"They don't tell me anything so far," I said. "But keep going."

Unnecessary advice. Walker Bryant had risen in the military partly because he had lots of *sitzfleisch*, the patience and kidneys and mental strength to sit in a meeting for as long as it took to wear down the opposition. He had no intention of stopping. I, on the other hand, think I suffer from an undiagnosed hyperactivity. I work a lot better when I am free to wander around.

I did that now, pacing back and forward in front of his desk. He gave me another glare, but he went right on with the viewgraphs. Now they showed notes in Lois's familiar handwriting about new imaging sensors, pointing out that they could be built smaller than the head of a pin. I noticed that the page numbers were not sequential.

"Who decided what to pull out and show as viewgraphs?" I asked.

"Rich Williamson. Why? Do you think he might have missed something?"

"Rich is good — in his field. But he's a SWIR specialist."

"Mid?"

"Short-wave infra-red. From about one to five micrometers. Visible light wavelengths are shorter, around half a micrometer. But if Lois made a lamphelm —"

"A what?"

"Don't worry about it. If Lois is invisible, then the visible wavelength region is where we ought to be looking. Anyway, I'd much rather see her original notebooks than someone else's ideas as to what's important in them."

"It would have to be done out in Reston. The notebooks can't be removed." He sounded and was disgusted. To Walker Bryant, everything important took place either on a battlefield, or inside the Beltway. Reston, twenty-five miles away from us, was a point at infinity.

"Fine. We'll go to Reston."

"You can go there this afternoon, Jerry. You won't need me. But there are things outside the notebooks."

He turned off the projector and went to the VCR next to it, while I kept pacing.

"I said we don't know how she got out," he said. "It's more than that. We have proof positive that she is outside. We learned today that she's still in the Washington area, and we even have some idea of her movements."

Which must have been a huge relief to the Security people. They always have one big fear when someone vanishes. It's not that the person is dead, which is unfortunate but ends security risk. It's that the person is alive and well and headed out of the country, either voluntarily or packed away unconscious in a crate, to serve some other nation.

I shared their feeling of relief. From Bryant's tone, Lois wasn't a corpse being trundled from place to place. She was moving under her own volition.

"Stand still for a minute," he went on, "and take a look at this. We've patched together six different recordings from ATM devices at local banks, withdrawals made over the past four days. As you know, every time someone makes a deposit or a withdrawal at an ATM it's captured on videotape. Standard crime-fighting technique. Withdrawals from Lois Doberman's account were made at six different machines. Watch closely."

A man I had never seen before was standing in front of the bank's camera. He worked the ATM, stood counting notes for a moment, and left. Soon afterwards a woman — certainly not Lois — stood in his place. She made a deposit, adjusted her hat in the reflection provided by the ATM polished front, and vanished from the camera's field of view.

I watched as the same scene was repeated five more times, with variations in customers as to age, height, weight, color, and clothing. Each sequence showed two different people making successive ATM transactions. One man was immortalized in intelligence security files in the act of picking his nose, another hit the machine when some-

thing, apparently his account balance, was not to his liking. Of Lois Doberman there was not a sign.

"Normal operations at an ATM facility," Bryant said when the tape ended in a flicker of black and white video noise. "Except for one thing. In each case, Lois Doberman made a withdrawal from one of her bank accounts — she maintains several — between the people that you saw. We have the print-outs of activity, which you can examine if you want to, and they are all the same: a normal transaction, with a picture of the person; then a Lois Doberman cash withdrawal, with no one at all showing on the video-camera; and then another normal transaction, including a person's picture."

"The Invisible Woman," I said.

Bryant nodded. "And the big question: How is she doing it?"

It was the wrong question, at least for me. I already had vague ideas as to a possible how. As I drove out of the District on my way to Reston, I pondered the deeper mystery: *Why* was Lois doing this?

I DID NOT BELIEVE FOR A MOMENT THAT SHE was any kind of security risk. We had long agreed that our own intelligence service was the worst one possible — except for all others. She would never work for anyone else. But if she stayed around the local area, she was bound to be caught. Fooling around with the ATM's, for half a dozen withdrawals of less than a hundred dollars each, was like putting out a notice: *Catch me if you can!*

Twenty-four hour surveillance of the relevant ATM's was next on the list. Her apartment was already under constant surveillance, so clearly Lois was living somewhere else. But I knew the lure of her own books and tapes, and how much she hated living out of a suitcase.

I took my foot off the accelerator — I was doing nearly seventy-five — and forced my thoughts back a step. *Was Lois living somewhere else? If she wanted to show off her new idea, what better way than living in her own place, coming and going under the very nose of Security and flaunting their inability to catch her?*

And my inability, too. Lois surely knew that if she disappeared, I would be called in. We had been too close for me to be ignored. I could imagine her face, and her expression as she threw me the challenge: *Let's see you catch me, Jerry — before the rest catch on.*

If I was right, others would catch on within the next few days. There were just a very bright people in R&D, smarter than me and shackled by only one factor: compartmenting. The idea behind it sounds perfectly logical, and derives directly from the espionage and revolution business. *Keep the cells small. A person should not be told more than he or she needs to know.*

The trouble is, if science is to be any good it has to operate with exactly the opposite philosophy. Advances come from cross-fertilization, from recognizing relationships between fields that at first sight have little to do with each other.

I had broken my pick on that particular issue, after fights with my bosses so prolonged and bitter that I had been removed completely from research programs. My job with Walker Bryant now allowed me to cross all fields of science, but at a price: I myself worked in none. However, I had not changed my mind.

The afternoon at Reston gave me enough time for a first look-through of Lois's notebooks. She used them as a combined diary and work file, with a running log of anything that caught her interest. To someone who did not know her well they would seem a random hodge-podge of entries. Rich Williamson had done his best, but he had not pulled out anything that seemed to him totally irrelevant.

I knew how tightly the inside of Lois's head was inter-connected. An entry about the skin of reptiles followed one about fiber optics. Human eye sensitivity and its performance at different ambient light levels

shared space with radar cross-section data. A note on sensor quantum efficiency sat on the same page as an apparently unrelated diagram that showed the layout of a room's light sources and shadows, while specifications for a new gigacircuit processing chip lay next to a note on temperature-dependent optical properties of organic compounds. Chances were, they all represented part of some continuous thought pattern.

I also knew that Lois was conscientious. Asked to look into stealth techniques, her days and much of her nights would have been devoted to the present — and future — limits of that technology.

At five o'clock I drove back as far as Rosslyn and signed out a small piece of unclassified equipment from one of the labs. I ate dinner at a fast food place close to the Metro, browsing through Bryant's library copy of *THE INVISIBLE MAN*. When I left I bought a chicken salad sandwich and a coke to take away with me. It might be a long night.

By six o'clock I was sitting in my car on Cathedral Avenue, engine off and driver's window open. It was a "No Parking" spot right in front of Lois's apartment building. If any policeman came by I would pretend that I had just dropped someone off, and drive around the block.

I wasn't the only one interested in the entrance. A man sat on a bench across the street and showed no signs of moving, while a blue car with a Virginia license plate drove by every few minutes. Dusk was steadily creeping closer. Half an hour more, and the street lights would go on. Before that happened, the air temperature would drop and the open doors of the apartment building would close.

The urge to look out of the car window was strong. I resisted, and kept my eye fixed on the little oblong screen at the rear end of the instrument I was holding. It was no bigger than a camera's viewfinder, but the tiny screen was split in two. On the left was a standard video camera image of the building entrance. On the right was another version of the same scene, this one rendered in ghostly black and white. Everyone walking by, or entering the building, appeared in both pictures.

Or almost everyone. At 6:45 precisely, a human form showed on the right hand screen only. I looked up to the building entrance, and saw no one. But I called out, softly enough to be inaudible to the man across the street, "Lois! Over here. Get in the car. Wait until I open the door for you."

I saw and heard nothing. But I got out, went around the car, and opened the passenger door. Then I stood waiting and feeling like a fool, while nothing at all seemed to be happening. Finally I smelled perfume. The car settled a little lower on its springs.

"Tin in," whispered Lois's voice. I closed the door, went back to my side, and started the engine. The man across the street had watched everything, but he had seen nothing. He did not move as I pulled away.

I glanced to my right. No one seemed to be there, because through the right-side car window I could see the buildings as we passed them. The only oddity was the passenger seat of the car. Instead of the usual blue fabric, I saw a round grey-black patch about a foot and a half across.

"I'm alone and we're not being followed," I said. "Take it off if you want to. Unless of course you're naked underneath it."

"I'm not." There was a soft ripping noise. "You already knew that if you think about it."

I had to stop the car. It was that or curse a pile-up, because the urge to turn and watch was irresistible.

"I guessed it," I said. "No clothes were found in the building in Reston, so you had to be able to put whatever it is over them."

It was close to dusk, and I had pulled the car into a parking lot underneath a spreading oak tree. As I stared at the passenger seat, a patch of fair hair suddenly appeared from nowhere against the upper part of the passenger window. The whole background rippled and deformed as the patch grew to reveal Lois's forehead, face, and chin. As her neck came into view there was a final wave of distortion, and suddenly I was looking at Lois, dressed in a rather bulky body suit.

"Too much work for the microprocessors," she said, and pushed her hair off her forehead with her hands. "When you put too great a load on them, they quit trying."

She peeled off the suit, first down to her waist, then off her arms and hands, and finally from her legs and feet. She was wearing an

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outfit of thin silk and flexible flat-heeled loafers. In her hands the suit had become an unimpressive bundle of mottled gray and white. She stared down at it. "Still needs work. For one thing, it's too hot inside."

"That's how I knew you were there." I picked up the instrument I had been using. "I didn't know how you were doing it—I really still don't—but I knew a living human has to be at 98.6. This instrument senses in thermal infra-red wavelengths, so it picked up your body heat image. But it didn't show a thing at visible wavelengths."

"Anyone in the suit is invisible out to wavelengths of about one micron—enough so they don't show in visible light or near infrared." She hefted the suit. "On the other hand, this is a first-generation effort using silicon sensors. I could probably do a lot better with something like gallium arsenide, but I'll still have a thermal signature. And if I move too fast or make unusual movements, the processors can't keep up and the whole system fails."

"And it's not a great idea to wear perfume. That's when I was absolutely sure it was you. Want to tell me how it works? I have an idea what's going on, but it's pretty rough."

"How much time did you spend with my notebooks?"

"Half a day."

"Take two more days, and you'd work it all out for yourself. But I'll save you the effort." She tapped the copy of *THE INVISIBLE MAN*, sitting where I had left it on top of my dashboard. "Wells could have done better, even in 1900. He knew that animals in nature do their best to be invisible to their prey or their predators. But they don't do it by fiddling around with their own optical properties, which just won't work. They know that they are invisible if they look exactly like their background. The chameleon has the right idea, but it's hardware-limited. It can only make modest color and pattern adjustments. It occurred to me that humans ought to be able to do a whole lot better. You'd got this far?"

"Pretty much." I saw a patrol car slow down as it passed us, and I started the engine and pulled out into the street. "The suit takes images of the scene behind you, and assigns the colors and intensities to liquid crystal displays on the front of the suit. Somebody fifteen to twenty feet away will see the background scene. The suit also has to do the same thing to the back, so someone behind you will see an exact match to the scene in front of you. The problem I have is that the trick has to work from any angle. I couldn't see any way that fiber optic bundles could handle that."

"They can't. I tried that road for quite a while, but as you say, optical fibers don't have the flexibility to look different from every angle. I only use them to allow me to see when I'm inside. An array of pin-hole sized openings scattered over the front of the suit feeds light through optical fibers to form images on a pair of goggles. Straight-forward. The invisibility trick is more difficult. You have to use holographic methods to handle multi-angle reflectances, and you need large amounts of computing power to keep track of changing geometry—otherwise a person would be invisible only when standing perfectly still." Lois touched the bundled suit. "There are scores of microprocessors on every square centimeter, all networked to each other. I figure there's more computing power in this thing than there was in the whole world in 1970. And it still crashes if I move faster than a walk, or get into a situation with complex lighting and shadows. Uniform, low-level illumination and relatively uniform backgrounds are best—like tonight." She cocked her head at me, with a very odd expression in her eyes. "So. What do you think, Jerry?"

I looked at her with total admiration and five sorts of misgiving. "I think what you have done is wonderful. I think you are wonderful. But there's no way you can hide this. If I'm here a day or two ahead of everyone else, it's only because I know you better than they do."

"No. It's because you're smart, and compartmenting of ideas drives you crazy, and you refuse to do it. It would take the others weeks, Jerry. But I had no intention of hiding this—otherwise I would never have stayed in the Washington area. Tomorrow I'll go in to work as usual, and I can't wait to see their faces."

"But after what you've done—?" I paused. What had she done? Failed to sign out of a building when she left. Disappeared for a week without notifying her superiors. Removed government property from

secure premises without approval. But she could say, what better practical test could there be for her invention, than to become invisible to her own organization?

Her bosses might make Lois endure a formal hearing on her actions, and they would certainly put a nasty note in her file. That would be it. She was far too valuable for them to do much more. Lois would be all right.

"What now?" I said. "You can't go back to your own apartment without being seen, even if you put the suit back on. It's dark, and the doors will be closed."

"So?"

"Come home with me, Lois. You'll be safe there."

That produced the longest pause since she had stepped invisible into my car. Finally she shook her head.

"I'd really like to, but not tonight. I'll take a rain check. I promise."

"So where do we go?"

"You go home. Me, you drop off at the next corner."

I was tempted to say that I couldn't do it, that she didn't have her suit on. But living in a city with over half a million people confers its own form of invisibility. Provided that Lois stayed away from her apartment, the chance that she would be seen tonight by anyone who knew her was close to zero. And she still had the suit if she felt like using it.

I halted the car at the next corner and she stepped out, still holding the drab bundle. She gave me a little smile and a wave, and gestured at me to drive on.

Next morning I was in my sub-basement department exactly on time. I called Lois's office. She was not there. I kept calling every few minutes.

She was still not there at midday, or later in the afternoon, or ever again.



HIS TIME THERE WERE NO TELL-tale ATM withdrawals, no hints that she might still be in the local area. Some time during the night she had been back to Reston, entered the building with its round-the-clock surveillance, and removed her notebooks. In their place sat a single sheet

of white cardboard. It bore the words, in Lois's handwriting, "I know why the caged bird sings."

That sheet was discussed in a hundred meetings over the next few weeks. It was subjected to all kinds of chemical and physical analysis, which proved conclusively that it was simple cardboard. No one seemed to know what it meant.

I know, of course. It is a message from Lois to me, and the words mean, *It can be done. There is a way out, even from the deepest dungeon or highest tower.*

I told everything I knew about the invisibility suit. Other staff scientists rushed off excitedly to try to duplicate it. I came back to the Department of Ultimate Records, to the old routine.

But there is a difference—two differences. First, I am working harder than ever in my life, and now it is toward a definite goal. Not only is there a way out, but Lois assures me that I can find it; otherwise, she would never have promised a rain check.

The second difference is in Walker Bryant. He leaves me almost totally free of duties, but he comes frequently down from his office to mine. He says little, but he sits and stares at me as I work. In his eyes I sometimes detect a strange, wishful gleam that I never noticed before. I think he knows that there was more to my meeting with Lois than I have admitted, and I think he even suspects what it may have been.

I will leave him a message when I go. I don't know what it will say yet, but it must be something that he can understand and eventually act upon. Even Air Force colonels deserve hope. □



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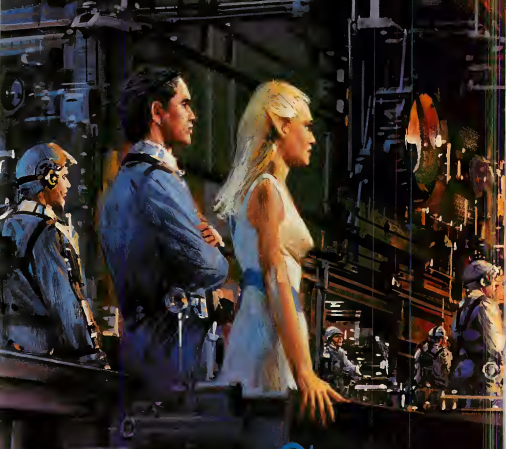
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Kistna-Kit hoped that her transit across the twenty-two curled dimensions between the stars would change her life forever.

STRINGS

OCK YOUR EARS THIS WAY, LITTLE ONE."

Kistna-Kit has pointed ears poked through her blonde hair. Pulls a slouch hat out of her shoulder bag and jams it on her head to hide them. No construct she, not to be lured by hawkers offer her some shoddy price for the old alleyway binbaum. Slouch hat on her head good ear cover, but now the sounds of the city come muted. Under the purple sky. Always the sky-color here in this city, in Wheredan. Lavender with wisps of darker violet in the bright twilight-dawn, purple black with the pale lilac clouds reflecting groundlight at night.

Port city on purple world where the starships go up and out to where the energy of the stellar vortex fuels transport. Above, the sky is luminous, the aurora; faintribbon ghosts at twilight-dawn, brilliant the rest of the time. Brighter still the huge faraway bluewhite sun with its tail wrapped around its invisible companion, the black hole.

Kistna-Kit's high heels go tap-tap-tap down the street to the club. To work. She chatters down steps, pokes her head in.

"Kit!" calls the man at the club door, "what have you got on your head?"



"Hat," she snaps.

"And cover beautiful hair? Exquisite perky ears?"

She takes the hat off. Can feel ears droop because she doesn't want to take her hat off. Foolish ears. Face doesn't tell what she feels hat ears, silly ears, always say. Play poker, always wear a hat, okay? Tap-tap-tap to the dressing room to change.

"TEST!" the doorman shouts.

Tap-tap-tap back, ears flat against her hair. She stands in front of him and extends her hand. He puts the clip on her finger, the contact glows blue.

"Okay," he says, "no modifications, no viruses."

What do they think, she would go out and add something without telling them? Get a tail? Cloven hoofs? *Modify* when she doesn't have to because she was born lucky, horn with ears like this? Or that she would pick up some virus that would dismantle her cells? No alleyway girl, no sir — tap-tap-tap to the dressing room full of fancy cloths for dancing. She is

BERKEY

BY MAUREEN F. MCHUGH
Illustration by John Berkey

breedtrue. Got a good job, pretty girl with breedtrue perky ears. Someone going to come in from transfer, buy a drink, see her dancing, offer to take her out of Where'dau. Get a contract on a big transport ship like that girl, Scherzo Livrey, breedtrue singer at Dreibruja, and all she had was fur. No interest. Fur is just like hair only more, not like Kit, born with ears. Pretty ears. Stand up ears.

Littlendings like the doorman pressed hierarchy, flexed their flab. Stupid doorman. All he has is job, so he wants his power. Testing her. So that club can say they have breedtrue girl, no modifications. Certification on file.

"Sweetie's," Cardamon sang, "what has you all flat ears?"

"Just doorman." Throw the bag on the little chair.

"Just the doorman," kitten. Don't use slang."

Kit pouts.

"Practice. Smart thing like you needs to talk right, then when you get your lucky break you're ready." Cardamon, sweet ginger lady with pretty scales down her nose and across her cheeks like sprinzie of glitter, scatter of diamond. A breedtrue, but modified. Modified to hide her age. Cardamon oldlady, wisewoman knows all tricks, Kit's auntie-no-relation. High forehead, long rust hair stippled black.

Kit pushes bag off, sits in chair and slips off heels. On her feet. Sits cross-legged, knees winged out, holding soles of her feet in the palms of her hands.

"Don't wear them to work, shabata-sweet."

Not wear high heels? Work so hard to get this job and not wear high heels? Even heavyminded club-dooman, always testing for modifications, wants her to wear heels so that all up and down the street, people hear her tap-tap-tap and know there will be a show. Cardamon is sweet oldlady, but too old to know how wonderful it is to wear high heels and feel like a real dancing girl.

Kit puts on her makeup. She has a high forehead, but a short jaw that slants sharply upward to where her ears would be if they did not perk up through her hair. She wears her blonde hair to cover the place where her ears would be if she were standard. Pretty enough for a big transport ship?

Her ears cup forward and she smiles. Sure.

JON-CAT COMES TO SEE THE SHOW WITH his friends.

She knows them for portcrew — they are all so standard. Portcrew don't much do modification. Brown hair

receding back away from his face, brown skin, a little darker than Cardamon. Kit sings to him, crooning and swaying. Smoke music, so sad. He has big eyes for her but he is embarrassed. Goodsign, portcrew's pink face. Between sets she comes out to sit with him, shyness back at his surprise. That is when he tells her that he is called Jon-Cat. She tells him that her name is Kistina but everyone calls her Kit. He says they are both cats and they are made for each other.

She sings the next set at him, not so shy, her eyes and ears focused on him. Sweetest, why-did-you-leave-me songs, and she turns her face away as if in sorrow. She watches him from above the stage while Cardamon silently rolls her hips, but he does not seem interested in Cardamon's wisebody ways. If he was, Kit knows she could not compete. She is innocence, that is her trump. Cardamon is joss and Sunday morning alone and knowing she will never keep her man. Cardamon is a lamia.

Someday Kit will be a lamia, but not yet, now she is still a smookey Juliet.

He offers her joss, a drink.

"Not joss," she shakes her head, her ears flickerback. "Not good for the dancing." She smiles. He buys her a pretty drink in a tall thin glass.

The club is full of jossfog and chatter. He and his friends talk about

the port. They talk about other safeclubs on the portlist. They talk about transit, the twenty-two curled dimensions. They call the transit between stars the click and talk about how many clicks they've had. Kit imagines the dimensions flower-burst for just that moment. "What's it like?" she asks.

They laugh. "Nothing."

"Fast," says one, "over before you know it."

"You don't notice?" she asks, disappointed.

They are thoughtful, look at each other, afraid to speak their trade religion, the unofficial things that they all know and that science doesn't explain. "Sometimes, afterwards, you remember what it's like," Jon-Cat says. "It tastes like horn music."

"It smells as soft as velvet."

"It's the color of a woman's low laugh."

"It feels as slick as the blue of your dress."

They are drunk. Kit pouts, ears droop.

"You can't explain it," Jon-Cat says, wistful.

She goes back and changes into short skirt and butterscale boots. She takes Jon-Cat out the back and they walk to her place. She is as tall as he is. He laughs at her hat. "Why cover your pretty ears?"

In bed, at the talktime, the aftertime, he tells her in a drowsy way about his home, very far away. Clicks and clicks. She imagines jumping from star to star. "Where'dau is so strange," he says. "A hothouse under radiation shields. Why do people change themselves?"

"To be like breedtrues," she says. Swiveling her ears to cup his voice.

"What does that mean?"

"I was born this way. My ears are my genetic own," she says. "Maybe my baby will have ears if everything else is right." Usually not. Almost never. But maybe.

"Your mama had ears?"

No, her ears were hidden in long spaces of her man's chromosomes, alternates, keyed alert by accidents of environment and her daddy's own chromalanguage. Probably, Kit's children will not manifest alternate chromalanguage.

Her mama didn't have ears, didn't know about ears til Kit was born. Her mama had red eyes, but that was modified. Breedtrues were different born. Modifieds made themselves different. And standards, like Jon-Cat — well, Jon-Cat was sweet so she didn't care if he was simple-standard.

"Sometimes in the past people had to have been modified. Gene modified. Or you wouldn't have alternate strings in your chromosomes," he says.

"That's wrong," she says, sullen. Not supposed to change humans. Already, distance makes genofrid. Humanity fragments. Considerate people do not encourage that. "Cardamon talks like you."

He doesn't like Cardamon. "She couldn't be in love like us, she's too old," he says. Kit lays her head on his chest. He strokes her hair, plays with her ears, long ticklish pleasure.

"I WANT A BABY," KIT TELLS CARDAMON.

"Shabata-sweet," Cardamon says, "more like my daughter than my own two children, why don't you wait a few years. There is time enough for babies. How will you get your big break if you have to take a baby with you?"

Kit knows a baby won't matter. Lots of people have babies at her age.

"You don't know, longlegs, about the baby and the work at night. It's so hard." But Cardamon sighs because she sees that Kit has this idea in her head. And although Cardamon knows all about the work, she thinks of baby, sweet milkybaby smell and soft hair, and her arms curve to hold it.

"Will you be a baby's auntie?" Kit asks. Whispers.

"Of course," Cardamon says. She gives Kit a big hug. "But you should wait a little while, sweet thing."

Kit sees Jon-Cat every night and when she isn't singing she takes him through Where'dau. At the bazaar they eat meatfruit on a stick and stare at lavender sanddragons, sleeper and parasite-scaled. She stops to look at children's toys — finger fish that dart around her hands, gossamer strings for babies to tangle and play with. Jon-Cat buys her birds to fly above them in bed, singing children's songs.

Her place is full of her things, of his things, and at night, of the ghostly luminescence of finger fish. Lullaby birds throw soft lights on his face while he sleeps. She thinks of long strings curled in his cells, wonders what they might tell long strings curled in hers. Why would she choose Jon-Cat for baby's father? Because he is thoughtful and good and sweet.

Her daddy was portercrow. Something about ports, she is sure, will make her baby breedtrue. She nuzzles Jon-Cat and sleepily he turns towards her, settles with his arm around her. She tickles him with her finger tips, her ears sweep forward and back as she concentrates. He opens drowsy eyes and smiles. Inside his eyes are twenty-six dimensions, twenty-two curled tight. Strings describe the universe and strings are curled into her cells. What makes portercrow so important? Maybe it is the click that jars the unfolding of alternate codes in her genetic strings.

"Jon-Cat," she says.

"What?"

"Who is allowed to go on ship?"

"What do you mean? Crew?"

"Can I go on ship with you?"

He frowns. "Get a job in port? You wouldn't like it. Kit. People are always telling you what to do. It's all hierarchy, you hate that."

"No, just take one trip," she says.

"A trip? Transport liners are too expensive."

"Not a transport liner." She sits up and birds flicker around her ears like bioluminescent earrings. "Like you work on, corgship. Can I just go see? See where you work?"

"You want to come to the port?" he says. "Okay."

She smiles then kiss-kiss-kiss, tickling until he is laughing. "My fingerfish will get you," she warns him, her fingers flickering, tickling and teasing.

He catches her hand and puts her fingers in his mouth. "Best toys," he mumbles around them. Laughing, making love.

HE BRINGS HER PORTPASS, A CLIP THAT SENDS HER IDENTITY TO PORT WHEN HE PUTS IT ON HER FINGER. Hierarchy stuff. Kit is scared-excited.

They get off the train at the top of the

hill and look down at port. It sits in a huge saucer-shaped valley. The noise of shuttle landing makes Kit flatten her ears, she digs in her bag and puts on her hat.

No tap-tap-tap as they walk down to port. Even if she had worn her high heels no one could hear them over engine-roar. "So noisy," she says.

"They have earplugs to cancel the noise," Jon-Cat says. "Oh, wait a minute, not for your ears." He stops. "We can't go. It'll be too loud."

She stops. Not go? Noise bone-rumbles through her. "I can wear them," she says.

"They fit in ears," he says, gesturing like he was putting something in his. "They won't fit in yours."

"I don't care," she says.

"Kit," Jon-Cat says, exasperated. "It's really loud before you get inside."

She shrugs, walking.

He skips after her, grabs her arm. "Come on. It's just a dirty old port, there's really not much to see. The shuttles are the most interesting thing and you've already seen them. We can stand here and look. Then you can go back to town and I'll go to work."

She watches burn-blackened shuttle land. Noise ground-travels and shakes her and booms hollow in her lungs. Is this enough? Will it break loose strings in her cells, uncoil them and recoil them in different ways?

No sense in fooling herself. She needs to try a click.

"We'll see if they fit," she says.

He is exasperated. "Okay," he says.

The gate opens for them — it knows her from portpass, which is

good for today. By the gate is gray box full of earplugs. Jon-Cat hands her two. She doesn't like things in her ears. She takes off her hat and feels her ears flattened against her head. She looks at the buttonplug in her hand. "Which side?" she asks.

"No up or down," he says, shouting over the noise. "Just put them in."

She fumbles in her ear, putting it in. Then the other. She doesn't have them right, the noise is the same. They feel funny. Jon-Cat puts his in and says something. She can see his mouth moving but can't hear over engine-roar.

He can tell. "If you can't wear them, we won't stay," he shouts.

Oh they irritate her. "We can go inside," she says.

"No," he says. "It gets too loud, it can hurt your hearing."

The buttons irritate her so she shakes her head, hard, dog-shake. One button shakes loose but one button falls into place.

It is strange; one ear is full of noise and one is empty. It's as if she has gone deaf in her left ear. She retrieves the other button from where it bounced against indifference: wall and shoves it in. It is awkward, pushing and prodding. Suddenly the noise is gone.

She winces and shakes her head, wishing buttons didn't feel so strange. "Okay," she says.

"Are they okay?" Jon-Cat asks.

She nods, and flicks her head involuntarily, a shake to dislodge them, but luckily they don't. "How do they work?" she asks. "I hear you, but not engine-roar."

"They match the frequencies of the engine noise and buffer them out, and they let other sounds in," Jon-Cat says, which is not much explanation.

Jon-Cat grins. "You look unhappy, Kit."

"They feel funny."

"You'll get used to them."

She is not convinced, but once they are inside she'll take them out. The port surface is like glass, but blasted, blackened, scarred and scraped. She watches black shuttle take off, feels the rumble but doesn't hear any noise. Her mouth is open as she watches it climb, her teeth are shaking but there is not even a whisper of sound.

Jon-Cat laughs, she can hear him clearly. "Come on, Ears," he says.

They cross blasted shuttle-plain, in some places stressed into spiderweb cracks. Blackened shuttles climb to the sky and land. Kit stomps on shattered places and hears her feet thump. Jon-Cat shakes his head.

She is almost sad when they go downside to city under port, except that she wants to take out earbuds. But Jon-Cat says, "Don't take them out, we'll need them to go out to the ship."

Port people everywhere, all standard, most, like Jon-Cat, brown-skinned, -eyed and -haired. She puts her hat on, feeling ostentatious. People glance at her and she feels sorry for them, all so plain. "Why don't people modify?" she whispers to Jon-Cat.

He shrugs. "People don't really want to."

The light is bright, making odd shadows under everyone's eyes and noses, sharp-edged shadows. They take a little cart and Jon-Cat drives them through corridors. The corridors are different colors — yellow, blue, gray, rust — and at first it is interesting, but it's all same-same except for the colors. She flicks her ears, wishing she could take out earbuds, tedious-tired, yawning.

Back up some stairs to a door where they wait while the floor rumbles soundlessly, then the door opens on portfield, only now they are near a huge black stubby-winged shuttle. It is so big. She didn't know how big portfield was until standing here, smallfeeling still, in the charcoal soft shadow of big shuttle-ship.

"The Febrin Dirac," Jon-Cat says with obvious pride. This is his ship.

She does not like it. She does not like scorched sides or hollow sound of her feet on trembling bridge. She does not like bright light just inside the entry, or huge steelbones scaffolding they walk or little open seat that whisks them towards the pointed front of the shuttle. They stop at front end and look back at vast, half-filled cargohold. The ship is full of shadows and strange sounds and trembles constantly through her feet, vibrates gently wherever her hands touch. Her hands come away dusty with gray dust, not like lavender desert dust. Alien dust. The entryway they used is a light that glows like bright-star.

She takes Jon-Cat's hand and he smiles at her, proud. Then he takes her into rust-colored quarters. Quarters are hardwired with bright lights like under the port. Their voices are blurred with echo off the hard walls.

"This is my crewchief, CC Cambri. This is Kistina-Kit."
"Jon-Cat's friend from Wheredau," the woman says. "Welcome aboard."

This is woman she will have to convince? She shakes her head, searches for something to say, can think of nothing but "It is so big!" CC Cambri grins and nods. "Come on and see the rest of it."

There are Jon-Cat's crew mates; some she knows from club, some she doesn't, but all standard, all the same. They tell her what they do, meaningless wash of words as if earbuds tuned out sense as well as sound. Jon-Cat is in charge of environment and assists navigation, but today they are all loading cargo. She has a chair and she watches them hook lines to great containers, then work machines that lift and carry and dangle square-edged containers as if they were empty.

She asks tentatively if she could help, but Jon-Cat smiles and tells her to just sit and watch. They call incomprehensible things to each other, chattering. "Stress 4. Stress 5. Stress 4. Stress 4. Stress 5, stress 6, stress 7 — alt starb, silt it! Starb! Stress 7, stress 7, no, that's enough, it's falling. Stress 6. Okay. Perd. That's fine. Stress 5." Jon-Cat, his hands in waldos, watches intently, doing little things with his fingers.

She tries to look interested. It is frightening. And boring. She didn't know something could make her uncomfortable and bore her at the same time. She makes herself as inconspicuous as possible, feels sleepy with tension. CC Cambri checks every container, tapping it with a disc that hisses softly, "42 kay-bar, pincaries. Outbound: Alba Sitablahayn." Then she marks it off on her clip monitor. She looks very tiny in vast shadow-hold.

Jon-Cat explains to Kit that they are to transfer all the material beyond the click to the Alba Sitablahayn, another cargo shuttle.

Kit wants to ask if she can go with them but the moment never comes. She wonders if she has sat through all this boring day for nothing. Finally it is late enough that they stop and the next shift takes over. Kit is worn and yawning, even though she didn't do anything. She's so grateful to leave that she is almost glad that she never got a chance to ask if she could fly.

"Do you want to join crew?" Jon-Cat teases.

Her ears answer faster than she can lie.

KIT WANDERS AROUND HER FLAT SINGING SAD SMOKE SONGS.

*I know it's time to say good-bye
That what we had was something fine.
But mine is meant to savor once
And a man like you moves on ...*

JON-CAT IS AT WORK, LOADING CARGO. TOMORROW AFTERNOON HE WILL take off in his big ship and then click. He'll be gone six days, fly away then unload cargo. Click-click, out-back. Kit decides to clean up her flat but ends up moodily playing with her finger fish. They are not bright in the daylight.

It is hard to concentrate at work, to remember sweet smile and perk her ears. Before the show Cardamon tells her maybe it is time she stopped being a clubgirl and started working different clubs. Not to be thought of, makes her feel tired, out asking for jobs. Her ears droop. Foolish ears.

"What's the matter, shabata-sweet? Doorman flexing on you again?" Kit shrugs and wraps the bandana around her chest.

Jon-Cat comes for second show, brings some of his crew-family, five crew, his best friend Gamow and CC Cambri. Kit feels sad, sings feathered songs about lovers, about drowsy time, dances slow. Cardamon sings wise-funny songs about making love, pretending to be about other things, eating cake and office work, but full of double meanings. Kit sits with Jon-Cat and thinks maybe she won't have sweet-body, maybe she is too young. Her feet hurt.

Everybody asks her if she liked the Febrin Dirac. She tells them it was so big. They tell her stories of other ships, bigger ships. Times that the wrong dimension uncured and ships disappeared.

"What is it like in another dimension?" she asks.

They shrug. If things are in another dimension for more than an instant they either disappear or come back in particles. The very few that come back. Some of them think that other dimensions are where you go when you die. Ghosts hiding in tight curves.

After the show they go to after-club and have more to drink.

"How did you become crew?" Kit asks.

Jon-Cat sits next to her, holding her hand, listening to people talk about why they become crew. Money. Because their mother was crew. Their cousin. Because they lived so close to port. They tell stories about people they know who should not have been crew, argue about ship-name this person was on, port where that one was stationed. Kit wants stories; Febrin Chandrasekhar, Febrin Scherk, what difference to story does it make what ship they were on? Her ears flicker when they argue and she hears club sounds and music.

Jon-Cat buys her pretty drinks. They are all drinking or thick in jossfog.

"If you could not be portcrew, what would you be?" Kit asks.

No one knows what to say. Gamow finally says, "Maybe work on a transport liner." He is drunk and says things very carefully.

CC shakes her head. She is slow-serious, the way people get in jossfog. "Crew on transport liners are still crew so that's not a choice."

"We'd all be nothings in a big company," Jon-Cat says. "I'd be something where I could travel," Gamow insists.

CC, Jon-Cat, the others all nod. "Remember Hevri?" CC says. "With all the bird-things?" Jon-Cat says. "Kit, you'd have liked that. They all had huge wings like kites and they were beautiful colors. And the gas they lived in was pretty, too. What were they called?"

"Wheredau is so pretty coming in," Gamow says. "As pretty as Qlisa. Because the purple sand looks like Qlisa's oceans."

"Wheredau is pretty but it's always twilight," CC says. "Why did they make it always twilight? If I were going to make a world, I would make it be daylight once in awhile."

"I like the light," Jon-Cat says defensively.

"I'd like to travel," Kit says, chin in hand. She would. It would be interesting, go looksee. "I wish I could ride with you." She is not even thinking of baby-to-be. She is thinking of oceans. She has never seen much freestanding water. "Where you are going, does it have water?"

Jon-Cat says, "I'll bring an im."

"An im isn't the same. Kit has seen ims before, haven't you."

Kit shrugs. Everybody has seen ims. She doesn't watch ones about foreign places. She mostly watches serials. But she has seen some and studied in school, of course.

"CC," Gamow says, "couldn't we take her with us? It's a short run. The company would never know."

They are all drunk. Kit thinks. It seems very sensible. CC weighs idea. "Sure," she finally says. "Why the hell not?"

THREE SLEEPY HOURS LATER JON-CAT IS waiting at portgate. He clips portpass on her finger and then stuffs it in his pocket and leads her inside. Buttons in her ears. The ground all atremble even

so early. And Waiht, bluewhite giant star, streaming a maelstrom curl of stellar energy into the black hole companion above their heads under a luminous sky.

"Sleepy-ears," Jon-Cat teases, taking her hand.

He is hurry-hurry-hurry. She doesn't like it but she is too sleepy to argue. It is all hierarchy out here anyway. Up they go to the silent-rumble portfield. Up the lift and across metal-skeleton walkway. The ship sits gravid with cargo. Inside, Jon-Cat pushes door with his shoulder. "Take the top and stay here. There's a viewer. We don't lift off until apogee."

It's tiny — sleeping room for two people. Bottom bunk is unmade. She uses foothold to climb to the top and finds carefully made bunk and a net shelf crowded with things she recognizes as Jon-Cat's.

It is like Jon-Cat says, like entertainment says, long boring time, then the trembling, then the weight, then no weight and then normal again. So she sleeps some more.

Jon-Cat wakes her up and takes her to Navigation where he shows her Whereidan, pale amethyst orb orbiting circumpolar above bluewhite giant star with its companion black hole ensnared within its tail. He explains, "The black hole drains matter off the big star and it swirls around the black hole. It lets off tremendous amounts of energy. We tap that energy to pry open a curled dimension, actually number eleven, the dimension we use, and pop through close to Penzias. Then we transfer cargo, land and take on a shipment for Whereidan and pop back." He shows her what Penzias looks like. It is white and blue.

Then he tells her they are preparing for the click. Below them, blue-white giant throws off stardust and they spiral towards invisible companion. Stardust glows around them. They peel in towards the singularity. There is nothing to feel, just shine. Jon-Cat watches the counter and holds her hand. "A few seconds," he says.

She holds her breath but there is no jump. Just like watching ins. Now there are different stars, no stardust. It is not even pretty, not like the bluewhite star with long tail curling. Just stars.

Where is the blue that feels like velvet? Maybe this is not it? She looks at Jon-Cat.

He smiles and shrugs. "That's all there is."

She doesn't know what to say. All that for this? "Nothing happened," she says. "What about all those things you said?"

"Sometimes, afterwards," he says, "it's like you remember a little more. Just a moment, so little you don't really remember. You just remember remembering."

"I don't remember anything," she says, petulant.

"You'll like it when we land," he promises. "I'll show you Penzias. You'll enjoy that."

He means so well and he has missed so wide that she starts to cry. Her eyes are squinched shut, her ears pinned back.

"Kit," he says. "Kit, what is it? Did we get your hopes up too high?" He is talking to her as if she were babychild and denied sweet-treat. She shakes her head. "I thought it would do something," she said. "I thought ... it sounds so stupid."

"Tell me," he says.

"I thought it might, it might make breedtrue."

"What are you talking about?"

She is miserable. It sounds foolish to say out loud. Her ears flicker and flatten, spelling embarrassment. "I thought, if I went through click, it might shake up chromosomes. My father was portcrew and I'm breedtrue."

He didn't understand.

"I'm thinking, maybe, I want baby."

He pales. "What?" he says.

"Lots of girls have babies already, but I worry about danceting and getting job," she says, the words all rushrush. "But then I think it is time, you know? I am ready. So you talk about the click and I am thinking about my father being portcrew —"

"Kit," he says. "I can't get married. I mean, I like you a great deal, but I won't be in Whereidan for long. And I can't see you joining crew. I mean, look at how you feel about all this. And we haven't even known each other long."

Why talk about marry? She is too young to marry, she has Cardamon. That is certain. "I don't want to marry," she says.

"I don't understand," he says.

"I just want breedtrue," she sobs.

But he has taken his arms from her and he looks at her. He is not her soft. Jon-Cat. "You were going to use me to get pregnant?"

"I thought you would be so good, you are so good and you are portcrew and I thought it would make breedtrue, maybe, you know? Cardamon says I am silly, she says chromalanguage is not like I say and I know it is true but it was a feeling, you know?" Her ears open towards him, hopeful he will understand.

"Were you going to tell me?" he asks.

She hadn't really thought about it. "Sure," she says.

"But you weren't going to ask me," he says.

"You didn't say anything about wanting a baby," she says. Men said when they wanted part of the baby. How was she to know? She isn't ready for a shared baby. Women have sharedbaby with men they know for years. "Do you want one?" she asks, smallvoice.

"No!" he says.

Relief. "Oh, good. I mean, I didn't think so, and you leave Whereidan so it would be hard, you know, sharing?"

"You wanted my baby but you don't want me to have anything to do with it?"

"Not your baby," she says. "You don't want a baby."

"How were you planning on taking care of our child?"

"Cardamon and I could take care of it. Cardamon is auntie-no-relation." Did he think she wasn't responsible? "I have arrangements. I have good jobs and auntie and I am old enough!"

He is furious. Too late she realizes that he is consumed with anger. She cannot see why.

"You and some torch singer wanted to bring up a baby from me? You think I would leave my child to be brought up by a couple of bargirls?"

"Not sharebaby," she says helplessly. "My baby."

"But I would be the father, right? And you might remember to tell me and you might not, right? And I might never even know I had a child, right? What kind of man do you take me for!"

"Don't shout at me!" she says.

"Don't shout at you! You were thinking of using me for stud and you're telling me not to shout at you!" He is shaking. Will he hit her?

"I don't have to stay if you shout at me," she says, and runs from him, pellmell down corridors until she finds the one with beds in it. She chambers up over high bunk and sits, shaking, waiting for him to find her.

She waits, feeling cornered.

Jon-Cat does not come looking for her and that is the worst disappointment of all.

KIT IS IN THE MESS, HOLDING A CUP OF cha. CC Cambri is there and Kit's ears are telling the world she is uncomfortable. Foolish ears. "You and Jon-Cat had a fight?" CC Cambri asks.

What can she say. She nods. Jon-Cat has told them. She wishes he hadn't, but they are his crew-famly. She would tell Cardamon.

"You want to talk?" CC says.

Kit shakes her head. They are all portcrew and they will all be on his side. She wishes she could talk to Cardamon.

"Did you really want Jon-Cat to be the father of a baby?"

Kit nods.

"Why?"

Kit looks up. CC Cambri is frowning.

Kit doesn't understand. "Why is he mad?" Kit asks. "I chose him because he is good. He is healthy. He is gentle. I can look at my child my whole life and see his Jon-Cat face and I will be happy."

"But what about Jon-Cat?" CC Cambri asks.

"What about him?" Kit says. "I didn't know he wants sharebaby. He didn't tell me."

CC Cambri sits down which is nice, because Kit doesn't like looking up. All hierarchy when you look up. CC Cambri looks thoughtful. "Kit, for portcrew, all babies are supposed to be sharebabies."

"Why?" Kit asks. It sounds stupid.

CC Cambri shrugs.

"COME ON," JON-CAT SAYS AGAIN. IT IS HOURS AFTER PLANETFALL. SHE has been stuck in the little bunk all that time and she now understands what is so horrible about going to jail. "I don't feel good," she says.

"You came all this way," he says. "You're not going to miss this, even if you do deserve it."

He gives her a coat to wear, bulky black slick thing, ugly and too

big in the shoulders and too short in the arms so that wristbones show. He is trying to be gruff but he is excited.

Outside wet air, wet on her face and in her nose, and she ducks. The spiderwebbed black glass of port field is slippery. They are wishing port field? There are puddles. It is raining. "It's raining," she says. She has never seen rain. "It's awful," she says.

Jon-Cat laughs. "It is," he says.

They run across the ground, splashing through puddles, water staining her butterscotch boots. Underground the port looks like Wherecan. Same colors, same plants. Maybe it's so portcrew can always feel as if they're home.

Strange to have come all this way to see some thing.

But outside port nothing is the same. Green hills from far away are green velvet-covered. It is all plants, shining wet, growing everywhere. It smells like flowers.

"Who takes care of all the plants?" she asks.

"They just grow," Jon-Cat says. "On this planet they just grow, no one takes care of them." Ah, the rain waters them.

"Does it always rain?"

"It rains a lot."

THEY CLAMBER ONTO SHUTTLE BUS. IT hums along and sways around corners and makes Kit feel queasy, but outside are white and yellow buildings all low to the ground and full of curves. They have

openmouthed faces at the corners and ends that spill long narrow tongues of silver rainwater. Little waterfalls. On every building.

"What do they do with all the water?" she asks.

Jon-Cat laughs. "They don't do anything with it."

"Can you drink it?" she asks.

"Sure," Jon-Cat says. "But most people don't. Usually you want your water cleaner than rainwater."

Which doesn't tell her anything at all. But it doesn't matter. They get off the shuttle and he takes her down to shops underground. It is brightly lit, like being on stage. It is full of red long-feathered birds in cages. Women all have beautifully sculpted hair; bird hair and metal hair, some of it in colors she has never seen for hair and she wonders if they are modified, but then there is wig shop. In the shop are all white wigs. Short hair, long hair, hair that piles up in fabulous shapes, hair with spaces for brooches and feathers. And rows of wands for hair-color changes. Bird colors, red and metal and every color.

Jon-Cat takes her inside and shopgirls ooh and aah over her ears. One girl has brown skin and a shiny mane of hair in yellows and ambers and streaks of deep brown. One girl has a fanciful head of hair all elaborately knotted like wicker work on her head and it is green as leaves. She has a flower and leaves in her hair.

It would be wonderful to have hair like that for dancing. But no one can figure out what to do about her ears, although the girls sit down and make her try a wig. They are careful to find one that streams down in front of where normal ears would be so it isn't so obvious that she doesn't have any. It is worse than a hat and makes her laugh; can't hear and the pale white-silver wig (so silver it looks purple and blue in places) makes her a stranger.

She forgets to be mad at Jon-Cat.

She sees a woman with sweetbaby in arms. If Jon-Cat doesn't want a baby it is really tricking him to get one off him, but Jon-Cat is portcrew and he'll be gone soon. They walk past stage-set shops, so bright with light, looking at scarlet and silver birds, and all the while she is thinking about sweet Jon-Cat baby. Jon-Cat gone, strange to think about that. She will miss him, but his ugly anger has scared her and when he is gone she won't have to feel so fearful-shamed around him. Oh, she doesn't know if she should have a baby with Jon-Cat or not.

CC Cambri said all portcrew ever does is sharebabies. How hard that would be.

Outside it has stopped raining and the sun has come out and it is too, too bright. Fierce, eye-hard and painful. Her ears go flat. They go back in to get sunglasses for her, but without ears on the side of her head there is no place to hang them and she ends up holding them against her nose silly-looking and obvious. Foolish ears.

If she got a job on a luxury transport, like the girl, Scherzo Livrey, would she feel embarrassed about her ears? Maybe that's why Scherzo Livrey succeeded, because far is not really much different from these people. But ears, here among these people with hair like flowers, ears are strange.

Jon-Cat takes her for shuttle ride and then they get off in green park and climb up over pale sand hills and there is the sea.

Oh my.

It is like the sand desert except hard and glass-glinting, sun fierce. She holds her sunglasses to her nose and screws up her eyes against painful sunlight, so hard she can almost hear the white whine of light but she can't stop looking. It is nothing like desert because desert motion is so slow, and here, all in motion. The sea doesn't seem alive, just in thoughtless, perpetual motion. It is wonderful.

They sit on the beach and Jon-Cat kisses her. "I'm sorry," he says. "I didn't know you wanted a baby. I was just surprised, that's all."

She nods.

"But a baby means a lot to me," he says. "If I had a baby, I'd want to be there with it."

She nods as if she agrees. All open, the ocean. Something inside her, all open, too.

"I'm sorry I called you a bangirl," Jon-Cat says. "You're more than that."

"It's okay," Kit says. He is trying to be nice. Portcrew sweet talk, always tell girls that, but dancing is hard job to get. He doesn't understand. And that's all right, too. She didn't understand him, either.

They sit there, beach sand against their legs and ocean going hard and soft blue.

"YOU'RE LIKE A LITTLE GIRL IN SO MANY ways," Jon-Cat says.

"No I'm not," Kit says. "I make my own living. I'm old enough I could have baby if I wanted."

He narrows his eyes.

"Not with you," she says, angry at him. "I have a good living. I'm a settled-down girl. Cardamon and I, we are really good with each other. I'm not some silly thing that goes from one thing to another and can't keep friendships."

"Okay," he says, perplexed. He doesn't understand. As if she were silly girl, going from auntie to auntie, not sure how to keep comfort. But she and Cardamon are so good with each other. Cardamon says that Kit is wisegirl smart. And she loves Cardamon, her auntie-no-relation. They are settled strong and happy. Jon-Cat is sweet but no boything is as important as auntie-girl family.

What are we going to do when we get back?" Jon-Cat says.

She could say that they will do the same things they have done before. It would be easy. But she realizes with a touch of fear that she isn't going to. Maybe because she is a little angry with him. "I don't know," she says.

He looks a little hurt. He wanted her to say soothing things, easy things.

"I don't know," she says again, anxious but full of wonder, too. It is scary to speak the truth. But she is the one speaking the truth. She feels older. Stronger.

They are sliding apart now. Sweet boy though he is. "We will be friends," she says, firmly. She takes a deep breath. She feels regret but a kind of release. No strings of chromalanguage to connect them. No strings between them. It is a different song now, a sad-sweet song. But it is her song to sing. □

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The bottle held either the elixir of life, or the potion of death.
The only way to discover which was to drink.

YOU CAN WASTE A LOT OF TIME BEING IN love with people. Or so said my friend, Maqite, as she lay dying of a broken heart. Perhaps it was her calm resignation which kindled the final, fatal anger inside me. That, or my helplessness, as I watched this woman sink and fade like a sunset before my eyes. Sunset colors: That was Maqite. Even as her skin paled and shrank, her hair was the color of evening across the shawls of her bed.

She handed me a bead necklace, saying, "Take it."

It hung limp from my outstretched hand; limp and so cold, splashing colors over my knees as the light passed through the beads.

"Is there anything I can do for you?" I asked her.

She looked at me long and wonderingly. Perhaps there was. She could not speak the words, because she doubted whether she should or could, but I saw them in her eyes; flickering glyphs that spoke of an unacceptable hope. She was a good woman, and had suffered much in silence. Now, a shivering candle of resentment burned dim against her goodness.

Some months back, a sashaying, slant-eyed traveling-girl had come to our settlement. Her name was Kamsara. She had surveyed our community and attached herself to Maqite at once. She clearly did not intend to waste her time with anyone who did not sit upon the highest boughs of the community's social tree. Maqite was a woman of status. Her lover ruled our settlement with an inflexible will. Everyone adored him, which I suppose made him despise them.

FIRE BORN

BY STORM CONSTANTINE
Illustrated by Ken Kelly



For a while, Magje's friendship with Kamaara offended me, for hitherto we had been inseparable. Then, extending her questing awareness further, the interloper used her clever eyes and a basket of exotic promises to lure Magje's lover into her canopy of indigo folds. Magje had been devastated. I was furious, and secretly glad, for, at first, hadn't Magje been as bewitched by the stranger as her lover now was? I was shocked too, for the strange, beautiful creature who was Magje's man had seemed immune to feminine wiles. It had always amazed me he had remained by Magje's side, but I was relieved he had, for otherwise I might have had to do something about him myself. It was a prospect that filled me with feverish excitement, but also a sense of dread. He was like no one I had ever met; inscrutable as a cat, and just as deadly. Better he remained safe in the arms of my friend.

"Barish her!" I told Magje, when she finally admitted her suspicions about Kamaara to me.

She shook her head. "No. It is nothing. He is only interested in the dazzle, and soon his enthusiasm will fade. I should have kept silent."

I knew she still entertained Kamaara in her canopy, and kept her anger under control. But, despite this outer calm, knowledge of the affair only weakened Magje. It infuriated me that she would not fight. Now, all the life was draining from her. It was hard for her, so hard that they had brought her to this. Hard for me too with my black, bound feelings.

I replenished Magje's incense bowl, and went outside, the beads clutched tight in my hand. Her daughter, Mivien, was playing in the dust. Around me, the awnings and canopies of the settlement looked tired in the late afternoon, flapping listlessly. Magje's tent was seamed with dust; testament to her inability to shake the fabric recently. Mivien looked up and asked me how her mother was.

"Tired," I said. It was then I decided I could not let her kill herself. Not for this. As for me, I doubted there was anything to do with this matter that could kill me. I had developed an immunity, sipping the poison continually over the six years I had been a member of the community.

At that precise moment, a shape came out of the heat-haze, wreathed in dust. This phantom pranced to a halt before me; a nervous, over-bred horse, betasselled and steaming. Its rider dismounted, conjuring running, crouching boys, who competed with one another to lead the animal to shelter. He stood there, desert-dusted, with only his eyes flaring out from the scar around his face. Whenever he was near me, I could smell burning.

Mivien leapt up and danced past me, crying "Dada!"

Her joy at his advent made me feel nauseous. I began to walk away, toward my own dwelling.

"Pashit." He said my name, to me, a violation, at that time.

I did not turn, but said, "Yes?"

"How is she?"

How dare he ask me that? I knew he would have picked up the child. I could hear her babbling excitedly. Still, I would not face him, wanting him to feel insulted. "Magje is resting." I am supposed to bow, to manifest my supplication to this man. He has the power to crush me, exile me, perhaps worse. I should guard my words. Still, he let it rest, and I heard him go into the tent, followed by the low murmur of voices; the sharper remarks of the child, who craved his attention.

I wrapped the necklace around my wrist. Magje would not want me to act, but I had to. There was no choice, come ill or good. Something had attacked her so fundamentally that her sense of survival had fled. In her place, I would have struck out, exchanged snarl with snarl, cunning with cunning. Magje merely sickened, as if cursed, and could not look with clear eyes upon how to resolve her problem. I must fight for her. Besides, this was also my battle.

I waited until the next sunrise, before I blanketed my pony and rode away.

TO REACH MY DESTINATION, IT WAS ESSENTIAL TO PERCEIVE THE WORLD in a different way. I rode into a dream reality. Nothing but the most severe need would propel any of us in this direction, between the standing stones of The Hovering and The Backward-Looking. There is no trail to follow as such, just a feeling of intense aversion, a prick-

ling of the skin, a grinding of the joints, which signals a person is heading the right way. I had to blindfold the pony, but wrapped around his eyes a layer of palm fronds soaked in the juice of the desert violet pod, which brings visions of an extraordinary land to human or beast. It is a surreal place where the hawk hovers in flocks: an unusual and impossible image. Thus, I tricked my little beast into trotting toward the unthinkable. I dismounted at the place where the red scrub becomes glistening black stones, and tied him to a shrub beside a mud pool, where he could nuzzle the gloom and believe himself supping nectar. If the palm fronds dried out before I could return, he would come to his senses and rid himself of the blindfold, before galloping in terror back to the settlement. I hoped this would not happen, for I had ridden, by then, for two hours.

I walked into the shunned territories. People lived there, we knew that, and they were feared, for they were not like us. It was said they were exiles from a far, high place, where they had grown tall in the rarefied air. I had never seen any of these people, and sometimes doubted their existence, but for the tales that were brought to us, and the garbled, fevered rantings of those who traveled toward them, desperate and numb to fear, seeking answers and favors. The tall people were known by many names, but we called them *Yazatos*, the adorable ones, out of wary respect, for we lived too close to their lands.

In the holy books of our people were the commandments which forbade us to build in stone or wood. This rule was said to have come from a *Yazata* mystic, who had come to our people when we lived in a town of obsidian glass. He had shaken his staff and the town had shattered. Now we lived under fabric and hang charms at the swaying portals to ward off eyes of evil, which were the eyes of a bird, hungry and yellow. The holy books said many things about the *Yazatos*, although only the seers and scryers had read them all. We knew the adorable ones understood true sorcery, and that they worshipped the deities of fire. They were known as a dangerous and capricious race, to be avoided. Why then was I walking toward them, when I had laughed at the desperate fools who had gone this way before?

The answer is simple. The *Yazatos* were powerful, and could proffer solutions to any problem, for those who were brave enough to ask.

I WALKED DOWN INTO A VALLEY, FOLLOWING A PATH scoured, as if by running water in some far-distant time, through the bleached yellow rocks. The crags here were lumpy and bristled, as if wrung by the hands of giants into tortured shapes. That, or they were petrified trunks, frozen in anguished poses, slaying away from a divine lightning blast, or a vision of ultimate truth. I began to feel uneasy. My teeth ached, and I was sure I could hear sounds that were not there at all.

At last, the path led me out into the open. It was a place that looked as if a god had punched the earth; an uneven oval hole in the rocks that it might take an hour to cross. All around me the stone reared high, while the flat center of the valley was marked by strange monoliths; twisted red and ochre stone catching the light.

My heart was beating fast. As I approached, I realized that among the bulbous towers of stone, there was a village, or rather the stones were the village. The nearer I came, the more the scene before me seemed to solidify. Between the dwellings, I could see the smoking remains of many fires, dying in wide, shallow pits. The ground beneath my feet changed from yellow dust to black and gray cinders. Each crunching footfall threw up a reek of ashes. The air smelled strongly of smoke, which was acrid as if weeds had been burned. From the sentinel towers, I sensed watching, waiting eyes, although I could see no sign of human life. Only a few gray, skinny dogs were nosing among the embers, and they did not appear to notice me.

For a moment, I halted in the shadows of the towers, and considered turning back. An instinct within me warned I should go no further, that to carry on I risked death, or something more damaging. Yet would I be allowed to escape, now that I had come this far?

My flesh tight against my bones, I walked between the silent, watching towers. During to look up, I could see that each one com-

prised layers of rooms — which I presumed were living quarters. Each tower had only one entrance, at ground level, but dull rags flapped before rough-hewn holes that punctuated the towers' height. Strings of tiny bells hung from these openings, chiming thinly in the wind, wound around what looked like long banks of hair or combed hemp. I sensed a thousand watching eyes, and kept on walking, simply because I was too afraid to stop.

SHE STOOD, AS IF WAITING FOR ME, AT THE edge of the settlement. It seemed to take an age to reach her. Her unnaturally tall, angular body was swathed in dark cloth and she leaned into the wind. When the distance of only two or three strides separated us, I halted and said, "I have come." I had no doubt she had expected me.

Around her head, she wore a ragged shawl of charcoal gray fabric, which she held closed at the neck with a long-fingered, dark brown hand. Tails of gray-black hair whipped around the edges of her shawl. Her face looked very different to those of the ancient desert peoples I had encountered before. The cheekbones were high, the nose aquiline, giving her a haughty appearance. She seemed to be unethnically ancient, yet her black eyes were bright, and her skin strangely smooth. Her lips worked in rhythmic chewing, and whatever she had in her mouth exuded a thin stream of black liquid, which ran over her chin. She did not seem concerned about this. I could hear her muttering faintly to herself, but the words meant nothing to me.

"Will you help me?" I asked her. Simply by looking at this strange woman, I understood the danger I was in, and the folly of having come to this place. Still, it was too late to regret that now.

She nodded to me, and bade me follow her, away from the settlement, up into the rocks. A path was cut there, worn smooth beneath the passage of countless feet. My heart beat painfully like the dull throbbing of a bruise. My vision became dark. Above me yawned the entrance to a cave; shocking yellow rock against the lilac sky, framing a core of black. Throwing back my head, I watched the shimmering image of the woman enter into the darkness, but I could not follow.

She must have sensed my reticence, for she turned back, looked at me for a few moments, then beckoned for me to come to her. I detected a sense of impatience in her gesture. Wasn't this what I had come for? Why now did I balk at the very threshold of understanding?

Then, I saw the face of Magje's lover hanging before my eyes; a mirage of deceit. The image retreated before me, mocking, and I walked after it. Thus, I entered into the dry darkness of the cave. I said aloud, "He is the most beautiful thing alive." But the only response was the soft sifting of desert dust, duned by the restless winds, and the threading plush of water.

I knew that I had surrendered myself willingly to the caprices of a place of power. The air hummed with it. Deep within my ears rustled the crackle of flames, and my nostrils were filled with smoke and the perfume of clear water.

As my eyes opened up to the darkness, I could see that the far wall of the cave was curtained by a waterfall, which frothed into a wide, shallow basin. I thought to myself, *The water here is powerful, yet they worship fire.*

My guide stood beside the spuming basin. I could see her bare arms now, scored with the long, curling patterns of fading black tattoos. She still grinned at me, her jaws working as she chewed. Then she spat onto the sandy floor, expelling a black, greasy wad, and wiped her mouth. She spoke to me, but her words were harsh explosions of sound, which I could not understand. Pulling a grimacing face, she gestured toward me, and laughed.

"You know why I am here?" I asked her.

She grinned more widely still, and turned in a whirl of ashen cloth, to duck beneath the waterfall. I did not want to be left alone in this place. Anything could come. Anything could happen. One wrong move and I would be dead. Perhaps that was why she left me there.

These thoughts were part of the ritual I had begun when I had made my decision outside Magje's canyon.

I waited as patiently as I could, although my heart still hammered with the desire to flee. The busy water, the walls themselves, seemed imbued with spiritual presences, none of which felt benign. I began to wonder whether I would escape this place alive and even moved back toward the mouth of the cave. But just as my toes nudged the bar of sunlight across the threshold, I heard a movement behind me. Turning, I saw my guide had returned. In her hands she held what appeared to be a bottle of green glass.

"Come," she said, the first word she had spoken that I understood. I hesitated.

"The weak are afraid," she said, "and the selfish, and the ignorant. Are you any of these?"

I summoned my courage and went to her. Her hands were awash with viridian light, and at that moment I realized the bottle itself was not green, but filled with a brilliant emerald liquid. She held the vessel out to me. "This is black gold."

I wanted to ask why, in that case, it was green, but shrank from doing so. I nodded.

"Do you know what it is?"

I shook my head. "No, madam."

She laughed. "Oh, but I thought this was what you had come for." "Perhaps it is," I answered.

She teased me with the bottle; holding it out to me, then withdrawing it. "Do you have the right currency to trade with us?"

It occurred to me then that I had brought nothing with me but myself, and I grew cold to think that my body and soul might be currency enough. "Name your price," I said, but my teeth had begun to chatter.

The woman narrowed her eyes at me. Still holding my watering gaze, she withdrew the stopper from the bottle and held its lip to her mouth. I watched as her long, brown throat worked, swallowing. My own mouth had become dry. When she withdrew the vessel, her lips glowed vivid green, until she wiped the stuff away with the back of her hand. Her black stare held me, but as I blinked at her, helpless, her eyes filled up with green fire. It was the gaze of a serpent goddess. Her nostrils flared and she took in a great lungful of breath, held it within her, then gasped it out, shuddering. I could sense power pouring from her in invisible flames.

She held out the fatal bottle to me, and said, "Drink, then."

I took it from her, and the glass was cold against my palms. Serpentine light sickened my flesh. A strange aroma curled from the lip of the vessel; acrid and sweet. Sorcery lived within the bottle, a witchery that could be drunk. What would it give me? Knowledge, power? Then I thought of the many costumes of Lady Death, the many masks she wore. One of her gowns was a livid green, and she shook its skirts in the faces of those who crawled life.

I shook my head and handed the bottle back to the Yazata woman. "Thank you, but no."

She grinned, took the bottle and re-stopped it. "You are wise," she said. "Come." She placed a dry hand upon my shoulder and turned me toward the entrance and the brilliant light of the afternoon sun, which scorched the cinder paths of the settlement below. We stood there, upon the lip of rock, looking down upon the towered dwellings.

"You see," she said, gesturing with the hand that held the bottle, "that is my home here."

I followed her gesture with my eyes, but could not discern which bulbous tower she indicated. "Yes, madam, I see."

"How many layers can you count?"

I guessed, "Six?"

She grinned. "Seven. You cannot count very well. My great great grandmother went to live in that dwelling when it was but a single layer. When her son came of age, he took a wife, and built another layer to live in. My dwelling is on the fifth layer, and my great grandmother is already building the eighth."

"Does no one live at the bottom now?" I asked.

"I told you," she answered. "My great great grandmother lives there." "She must be very old," I said.

The woman nodded. "True. She is very old." She held up the glass

bottle. "This is our elixir, what people come here for. The elixir of life or the potion of death. It depends upon your heart, and your reasons for using it."

"Longevity," I said. "It gives you that?"

"Among other things," she smiled. "You are not here looking for a long life."

I shook my head. "No."

She squeezed my shoulder. "Come then, come back into this sacred place, and tell me of your desires."

I was reluctant to do so, having hoped our business could have been concluded there and then, but she had still not named a price.

We went to sit beside the bubbling pool, which the Yazata stirred with a long, brown finger. There were flashes of silver beneath the water's surface, which might have been fish or thoughts. The Yazata drew her curving brows together. "Your heart beats with black blood."

I squirmed upon the rocky floor. "There is a man."

"Of course."

I pushed back my hair. This was not easy for me. "He has abused my friend. She loves him and has given him her life, her body, yet he has committed an act of betrayal with another woman, a stranger. Maybe, my friend, is dying because of it. She is a good woman. It is not right that she should suffer. I have come here looking for justice."

"Ah, death," said the woman, and turned her bottle of black gold in her hands.

I SHIVERED AS I LOOKED AT IT. "YES!" THE WORD CAME like a flame from my lips. I wanted him dead so badly. I hated him. It was strange that I did not think of Kamaara, who might have been easier to dispose of. "He cares nothing for the feelings of others. He is as chilled as the night-wind, and as cutting. I swear his glance can strip flesh from bone. But he has a cold, cold beauty, and people love him because of it. He has a strong spirit."

"Born of fire," interrupted the woman.

I shook my head. "No, no. Nothingness, that is all."

She sighed tolerantly. "We can smell the smoke of his kind, even here, so far from your home. In his veins runs a liquid flame and his thoughts are smoke. If you did not love him so much..."

"I do not," I interrupted.

She ignored me and continued, "Or if you did not hurt so much, you would see that he is born of fire." She lifted the vessel of black gold and looked into it. "Caught in a bottle, he is, like a captive djinn."

I looked up into her eyes. The green glow had faded from them a little now; they were a mysterious mossy-black. "Does it matter that he's born of fire?"

She nodded. "Of course. It is the most important thing. Perhaps the real reason you are here."

I closed my eyes, as if being unable to see would prevent me from considering her words. It did not occur to me that she might have some interest of her own in this man, or even wish to influence the outcome of my visit.

"I am here to find a means to dispose of him. I will buy the black gold to kill him, if you would tell me how to use it, for I believe that only by freeing Masite from this man so definitely may her own life be saved."

The Yazata put her head on one side. "You must have heard, of course, that to attempt to use our elixir for the wrong reasons could kill you."

"I will not drink it," I said.

"I did not say you would."

I felt my face grow hot. "My reasons are right and just. He has abused too many people, and perhaps you are right in saying that I love him, but if I do, I am the victim of his enchantment, and love against my own will. It must end."

"As you like," she said, grinning, and stood up. "First, the price."

I remained seated, looking up at her. There were no words to say that I could think of.

"You must give a little life for death," she said. "That is the price."

"Life is precious to me."

"As it should be. We shall take only a sweet drop of it."

WHEN WE CAME OUT OF THE CAVE, THE SKY HAD TURNED THE BLACK of panther hide, lacquered with stars. Now the fire pits of the Yazata settlement were alive with brilliant flame, and around each one a group of people sat. I felt disoriented. Had time passed so quickly? When we had entered the cave, it had been around midday.

We paused beside one of the fires. The people stared at me. Like my guide, they were dressed in dusty black, but their faces were gray with ash. Lustrous black eyes shone out at me. All the figures were seated, but for one, a mature male. Everyone's attention was centered upon him and he muttered an incomprehensible incantation at the flames. His hair hung down his back and his face was gaunt. I could see his skinny body through the gaps in his loosely hanging robe.

My guide leaned down and put her mouth close to my ear. "He is our priest, the favored one of our family. What he forges in flame is neither life nor death, but elemental force. He has kindled armies of the dead for great kings. He has summoned sandstorms to choke a man's enemy. He has birthed djinn and deva from the cauldron of fire, and corked them into a bottle. You could buy one to release upon your enemy."

"No," I whispered back. "It must not be that."

"As you like." We stood silently as the priest finished his incantation. Women scattered powdered substances into the flames, their long brown arms flashing out like serpents from their dark robes. Sweet, stinging fumes rose like spirits from the flames.

Now my guide stepped forward, pushing me before her. Her long hands curled upon my shoulders like the claws of a vulture. "Here is one who would buy," she said. "She will trade a drop of life's liquor for black gold."

The priest looked at me then. What I saw within his eyes had no name, but it instilled within me the greatest fear I have ever known. I could not look away from him. He was fierce, with his long, wild hair and his ashen face, and his eyes glowed like polished beryl with the elixir of life. I had no idea how old he was; he could have been eighteen or eight hundred. My mouth and throat had become utterly parched. I wished I could faint, for I was sure I was about to endure something unspeakably terrible.

The priest made an abrupt gesture and another tall, sinuous male figure rose from beside the fire. Reluctantly, with the most gripping terror, I looked at him. He was completely robed; just a suggestion of an ashen face visible beneath his draped hood. Then two exquisite hands snaked out from the folds of cloth and tweaked back the cowl. I realized what stood before me was the most beautiful man I had ever beheld, more beautiful, even, than my hated beloved. It is amazing what the sight of such loveliness can do. I am ashamed to admit it, but my fear abated somewhat. His enormous eyes were lined crudely with charcoal, which also accentuated the hollows of his ashen cheeks. His hair was like the wing-feathers of the black griffin, softly falling over his shoulders. In his lovely gaze resided the knowledge of all the aeons. He held out his strong, slender hands to me and I took them in my own.

At that point, everything around me faded into oblivion. His finely drawn lips were expressionless, but his eyes smiled at me; flicked with hints of scorn and pity, yet otherwise quite gentle. He pulled me down to sit opposite him beside the fire.

"What must I do?" I asked him, but he merely blinked slowly and shook his head.

He squeezed my hands, and then widened his eyes. A shock coursed through me as if a bolt of lightning had pierced my mind. He held me in his stare like a snake holds the eyes of its prey, and I remembered how dangerous these people were, how unpredictable and how unknown. My body began to shake, and his grip upon my hands grew stronger. My crossed knees hammered against the dusty ground. My throat corded. I could not breathe. I wanted to scream, but could summon no sound from my arid throat. Then, I felt a wrenching inside my head, my heart, my belly. Something tore within me. Through the power of his eyes alone, he sucked part of myself away from me, drew it out through my own startled stare, took it into himself. Then, he thrust away my hands and threw back his head, gasping, his mouth wide in a smile of pleasure and satisfaction.

I exhaled with a groan and slumped forward, my vision spinning. I felt as if I was extremely drunk, to the point of sickness, but my body

could not vomit. My flesh was held in the vice of the most excruciating numbness and cramp. I curled up and writhed upon the cindery dirt, tears squeezing between my tightly clenched eyelids. Was I dying?

Then, I felt hands upon me. Someone dragged my limbs out straight and forced something cold and hard between my teeth, icy liquid, which burned like fire, ran down my throat. As it hit my stomach, the pain that gripped me melted away. I found myself blinking up at the bright stars.

I knew then: Demons were not worshipped in this place. They were created here.

MY GUIDE, THE ANCIENT WOMAN, took me out to the edge of the settlement. "What will you use my essence for?" I asked her. "Don't worry," she answered. "When the time comes for us to use it, you will not know about it, in any way. It has gone from you. No longer yours." I shuddered.

We had reached the shadow of the rock, where my path would lead back to my pony and the world I knew. Strangely, I was reluctant to leave. I looked back at the tall dwellings, black against the stars, and the crimson fires, greedy in their pits. I realized I had seen no children among the Yazatas, but perhaps, if their lives were so long, they could risk breeding only rarely. I knew I would never come here again.

The woman withdrew something wrapped in a scrap of silky goshide from her robe, which she pressed into my hands. I felt the hardness of glass between my fingers. "Use it wisely," she said. "It is the intention which counts. Some things are destined to die, others to thrive. Only your heart knows which."

"Thank you, madam," I said, and obeying an instinctive impulse, reached out to embrace her. She returned this impromptu gesture rather stiffly, then pushed me away to arm's length.

"Make haste," she said. "Those born of fire are alert for loose travelers beneath the stars' white flames. Smoke-men and djinn alike."

I knew she watched me until the path turned a corner and the rocks hid me from view, because I looked back at the last minute, and saw her tall shape standing there, dark against the sand.

I REACHED THE SETTLEMENT OF MY PEOPLE AT DAWN, MY BODY RACKED with pain and exhaustion. For a day, I slept, and without dreams. In the evening, the call of the stars woke me and I went to bathe in their icy fire. Had been changed? I wondered about it. I felt tired yet energetic, melancholic, yet hopeful.

The bottle lay where, that morning, I had cast it beside my cushions. Its verdigris glow filled my canopy with emerald fire. I picked up the bottle and held it to my breast. I closed my eyes and thought about the one I wanted to punish, whom I might never have. Not because of Magite, or my feelings for her, but because I feared he had no feelings for me. None that I could understand anyway. Born of fire. A desert creature, dry and hard and quick. He had been forged in a fire-pit and contained in a bottle. Someone had released him upon us, this djinn, whose fire was cold and who did not glow with flame, but was smoky, arid, and caustic. Kneeling there among my cushions, with the star-fire coming in through the entrance, and the green glow battling with it upon my fevered skin, I accepted certain truths. I was proud and vain and fierce. I would love him until I died, beyond his own death, if necessary.

I walked out into the night. There was music; the chime of bells, the lament of a flute, the shrill warble of a girl's high voice, and the best of drums. I went to Magite's canopy. It was full of weeping women. Kamsara stood among the curtains, her skin white as death's hand, her eyes dull. I knew she too was expiring, and would vanish by the morning, gone the way she came, a phantom. I did not have to do anything about her. She was irrelevant.

The women kneeling around the bed muttered prayers through

their tears. "Magite is dying," they told me, and I requested that they leave us together for a while. This, they were happy to do, because I was her dearest friend. I knelt beside her.

"Pushi, where have you been?" she asked weakly, smiling to see me. "Would you leave me to depart this world alone?"

I put my right hand behind her head and lifted it, held the unstoppered glass vessel to her lips. "Drink," I said.

Her lips quivered. "What is it, Pushi?" I swallowed. "Please, just drink."

Trusting me, she did so. I saw her eyes fill up with green fire. They blazed out at me, and she laughed. Her upper body reared up from the cushions and she held out her arms to the sky beyond the entrance to her dwelling. It was as if a beloved voice were calling out to her from the stars.

I watched and waited. All of my future hung upon these moments. Presently, Magite sank back down to her cushions with a rapturous sigh, and died there, smiling. I had not anticipated the outcome, only trusted my own heart.

I went back out into the night and summoned the women who, obeying custom, began to wail and keen.

I FOUND HIM BUT BEYOND THE PEAKED CANOPIES, ALONE BESIDE THE water of the spring, sitting beneath a leaning tree. He glanced at me, his eyes hard, and I said, "She is dead."

He nodded, his hair hanging over his breast. "It was expected."

"I see there is little risk of you dying from grief yourself!" I threw myself down beside him, and he seemed surprised I had done so. Normally, I ran from him, and would not endure his company or the touch of his eyes.

"You blame me," he said.

I nodded. "Yes. And no. Certain of your actions are unforgivable."

He sighed and leaned against the tree. "I did not ask to be born," he said.

It seemed, to me, an easy statement. I took the bottle from my pocket and tossed it into his lap. He stared at it, the green glow reflected in his eyes. "What is it?"

"Yazata elixir," I said. "I went yesterday to fetch it for Magite."

He touched the glass with his artist's fingers and glanced at me. "You were too late. How... pitiful."

"Yes," I stood up.

"You took a great risk."

"Yes." I looked down at him. "Still, why waste it? You drink it instead."

"I'm not dying."

"It will give you longevity. I've seen it."

He laughed, and I turned away painfully from his terrible loveliness. "Drink with me, then," he said.

I looked back at him and forced myself to suffer his eyes for a while. "I don't know what will happen." I watched him take the stopper from the bottle and drink.

Born of fire. *It will kill him, and I will be glad*, I thought. He blazed before me and it seemed to me as if dark, smoky wisps fled away from his body. Djinn! I must have made an astonished noise, for he frowned at me.

"Well, will you drink or not? I was brave enough to do so."

I squatted beside him. "You are not sad at all, are you?"

He was very still. "A little," he admitted, "but what is a sanctuary to some is a prison to others."

"Not that much of a prison," I reminded him scathingly.

"Some people were trapped inside with me. Now I am free."

He held the bottle out to me, and I drank.

I tipped back my head and swallowed a taste of chalk and velvet in a sauce of flame. I opened my eyes wide and the universe spun before me. Born of fire. We are. Desert creatures; kin to the djinn, to the deva.

I laughed at the spiraling sky.

When I had calmed down, he reached for my hand. I did not look at him, but we both stared out upon the night, thinking of our days to come. □

BEST *The* *Things in Life Are* FREEMAN

One artist's journey in search of the soul
of Science Fiction

BY DAMIAN KILBY

CONSIDER THE JOB OF THE SCIENCE fiction illustrator. His or her role is to be at the front-lines in the war of seduction between the reader and the story. The art of SF has long played this role, going back to the pulp days of the '20s and '30s, shaping the aesthetic and imaginal texture of reading in the genre. Any cover art or interior illustration is charged with creating that first jolt of excitement and interest in the tale which follows.

Sure, perhaps we might read a story despite mediocre artwork — something which just sits there and conveys nothing new and different — but only if we're already interested in the writer. Or we might give



"I don't get many chances to do something like this," said Freeman of his cover to the Roc anthology Intergalactic Mercenaries. He has always been impressed by the action scenes of Frank Frazetta, and saw this as his opportunity to import that barbaric attitude to SF.



In his cover painting for Commando Brigade 3000, depicting the last stand of two future soldiers, Freeman said he "wanted to imply lots of action without actually showing it," using his artist's technique to hint at the larger battle beyond. **TOP**

RIGHT: The demonic visage from the cover of *Monster Brigade 3000* is one of the artist's favorites. **BELOW RIGHT:** The image "Down Time," created for a limited edition booklet of short stories, shows that even Science Fiction's favorite creations love reading SF.





the first few pages a try if we have nothing else to read which looks more interesting.

But artwork that creates that special kind of magic has an energy which propels us into the story. A great SF illustrator can provide a context and open a dialogue. He or she can build a window into the story which puts the reader in the right frame of mind and invites us to enter a fictional world.

The artwork of Gary Freeman is a perfect example of the role of the illustrator performed to perfection. He is clearly aware of the nature of his job. He applies all of his considerable talents to drawing us in and connecting us with the story. His paintings and drawings clearly evoke the proverbial sense of wonder. They contain a larger than life drama, which plays a counterpoint to the sense of human emotion, the subtler shades of human frailties and strengths. Along with his use of bright primary colors, and bold, uncluttered composition, Freeman provides us with a feel for the elements of the story without giving anything away. So, we must read on.

It is no wonder that Gary Freeman has such an affinity for this sense of story, because he

has been an avid reader of science fiction literature since childhood. He got his start with the early classics of SF, the likes of H. G. Wells, Jules Verne and Edgar Rice Burroughs. He grew up with more contemporary favorites such as Ray Bradbury and Harlan Ellison.

As for his visual inspiration, Freeman says it was the work of Frank Frazetta which first sparked the idea that he could apply his

artistic skills within science fiction. Over the intervening years he has been influenced by many other artists in the field, including Syd Mead, Richard Corben and the Brothers Hildebrandt.

Freeman studied fine art and received a degree from the University of Nevada. He played in rock bands for many years and for a time was serious about following the musician's path. He has worked his way through a series of jobs in advertising, eventually holding the position of art director at several advertising agencies. He continues to work in advertising illustration and design and holds several awards in that field.

Throughout, he has kept his hand in SF, doing his first cover art for the now defunct *Fantastic Stories* magazine in 1979. Frequent readers of the SF magazines will find the dis-





LEFT: "War Story" proved such a popular creation that after illustrating Gregory Benford's short story, it became the cover of an *Ace* anthology. **BELOW:** Freeman's cyborg shows him to be one of the few SF artists equally as comfortable with black and white people imagery. **RIGHT:** The cover to *Animal Brigade 3000* allowed Freeman a chance to juxtapose steel and fur for a unique vision of future warfare. **BELOW RIGHT:** Freeman was the perfect match for the rough-and-tumble tomorrow of Allen Steele's "Mudzilla's Last Stand."

tinctive style of his color covers and intense black and white interior work — which constantly showcase his mastery of the human form and montage composition — a familiar sight. He has been a regular winner of readers' polls. Now he is focusing much more on the color work, moving more heavily into book covers. And, in just the past year, Freeman has taken to digital art, working on 3-D modeling and computer animation.

This artist brings his enthusiasm and experience as a reader together with his practical knowledge and skills from fine and commercial art to compose pictures which serve and reinforce the power of the stories they illustrate. Still a fan of the literature, Freeman feels privileged to be on the inside, reading advance copies of stories and novels, often by writers he has long admired.

He has worked with many of our greats, such as illustrating Isaac Asimov's final series of *Foundation* novellas, or his startling portrayals of Robert Silverberg's larger than life *Gilgamesh* stories. And he has helped boost a host of stories by newer, up-and-coming writers, such as Maureen F. McHugh and Eric T. Baker.

Freeman's illustration for Baker's story "The Politics of Pneumatic Times," back in the January 1996 issue of *Science Fiction Age*, is a fine example of many of the artist's strengths. Here we have hard-edged machinery, giant cogs and pipe works, and looming structures in the background: oversized icons of science and engineering. Juxtaposed



with this is a woman in the foreground, finely rendered, sweating, gritty, the human side of all this technology. Her face and posture are highly expressive: sad, weary and determined at the same time, pitting her human strength against the hard edges around her.

Freeman often captures the power of science fiction this way: showing the vivid, expressively human face in relation to larger forces such as the hard edges of technology or the cold, looming vastness of the cosmos.

No matter how larger-than-life the setting, his people always look like real individuals, connecting us to all that is human within the grandeur of SF.

Even when there are no human beings in the picture, Freeman still manages to inject a sense of humanity into the scene. A good instance of this is his painting of a golden robot and an Alaskan husky, poised at the top of a snow-capped mountain, gazing off into the unseen distance, wistful, sad, but slightly hopeful in their stance, as if together they are searching for signs of a humankind which disappeared long ago. In an essentially simple picture of a robot and a dog there is a strong emotional tone and a clear sense that behind this scene there is a story well worth the telling.

Or take another scene of a robot, alone, reading a science fiction magazine. A simple picture, with nice details such as the textured background and the robot's extra set of small arms turning the pages.



But what makes us truly care about this picture is the posture Freeman has given the robot. Clearly it is deeply absorbed in the magazine, touchingly human in its distracted involvement with the pleasures of fiction.

Using the depth of his reading experience in SF and his skills as an artist, Gary Freeman doesn't just recreate a scene out of a story or novel. Instead, he reaches for the essence of the story. He pores over manuscripts, reading them many times over and thinking deeply about how to represent the story. Mobilizing larger than life imagery, drama and all too human emotion, his work becomes evocative of the kind of story-telling we crave and he connects us to the tale before we've read a word.

In true form, for a science fiction reader, Freeman is always ready to expand into new areas of endeavor and adopt new techniques.



He is a master with the airbrush, but in any given painting he may also use tradition brush work, colored pencils, dyes, inks, blotting with tissue paper or anything else that serves his vision. He is branching out from SF to be, further adding new techniques to his techniques to the super-realistic style he is known for; and, unlike many artists, has no reluctance in embracing the new tools of computer graphics, with which he feels he is learning to achieve remarkable results. He has started doing animation for computer games, including a *Blade Runner* project, and he imagines no end to new areas that may open up, such as movie effects graphics, or work in a medium not yet invented.

In whatever medium we can expect his life-long love, Science Fiction, to appear, there you will continue to find Gary Freeman, in search of its heart and soul. □

stellar expeditions. "That was in 1927," Nemoto said.

"Goddard was a farsighted guy," Meacher murmured.

"Even if he got it wrong," Nemoto said. "Even if, as it turns out, Triton will be used as a staging post for expeditions from the stars."

"If that's true," Roach said.

"Yes. If I'm right."

They drove on.

Meacher found herself, reluctantly, falling in love with Triton. It was a low-light diorama, subtle, utterly unearthly.

Reluctantly, because, she was coming to realize, she would have to destroy this place.

It had taken Gurrutu — lightly loaded with Meacher, Roach and their supplies — a year to reach Neptune. Meacher and Roach had already endured one long spaceflight together, and they soon settled into a routine. They had worn grooves in each other, said Roach. They operated their craft, and they cared for each other, putting themselves through a tough regime of exercise and nanotechnology therapy to avoid bone calcium loss and fluid imbalance. And they made love.

Meacher's dreams were still troubled, visions of rings of pink metal, icosahedra, dodecahedra. Somehow it didn't help that now, at least, she understood the meaning of the visions. She still didn't know what aspect of her gateway transitions had put these things in her head.

She feared that her consciousness was being damaged, or changed, on some fundamental level. Human consciousness was a quantum process, as was the mechanism of gateway transition. Perhaps there was some interaction. Perhaps it was deliberate.

Her inner self was made up of what the philosophers called *qualia*. The inner sensations, of pain or pleasure or redness or blueness. She was human because her *qualia* were human.

What if her human *qualia* were being removed? What if they were being replaced, by something alien?

In that case she might still be human in appearance, in external form and function. But not human inside.

Would she still be herself, in any sense?

She didn't discuss these problems with anyone.

But when she cried out in her sleep, Ben Roach held her.

To distract her, Ben Roach told her about the logic system used by the Yolgnu tribe.

"It is different in quality from the Western system," he said, "which is based on numbers. Our system is founded on *gurrutu*, on kinship. There are sixteen fundamental relationships between things, based on relationships within the family."

"Like husband and wife."

"Husband-to-wife is called *galny*. Wife-to-husband is called *dhawny*." "Oh. Directional. Like vectors."

"Yes. All relationships are formulated in terms of these sixteen elements. We use these relationships to describe the land, whose structure is underlaid by a *gurrutu* mesh. Our song cycles encode our understanding of the world, in these terms; for example, how the flow of fresh and salt water through the land is linked to the position

It had taken Gurrutu, with Meacher, Roach and their supplies, a year to reach Neptune.

of springs. There are sixteen clans, comprising the Universe, mapped to the sixteen relationship elements; the clans are divided into two groups — *yirrija* and *dhawny* — and everything belongs to one of these clans. *Yirrija* and *dhawny* are always in balance."

"What do *yirrija* and *dhawny* mean?"

"There is no English translation."

"I can see how you can capture ideas of causality, predict features of the landscape this way."

"Then you do not see. There is no notion of causality here. There is no prediction; this is a timeless logic. And similarly, there is no difference between nature and culture."

"And yet your history is not timeless. Things change. You're traveling between worlds, for God's sake."

He smiled. "And yet for forty thousand years, before the coming of the Europeans, our world was timeless. Causality did not matter, only the relationships between things. And perhaps after this migration, when Triton is settled, we will enjoy another forty thousand years."

"And then?"

"Perhaps it will be enough."

He told her about his wife, Marie, who had preceded him to Triton.

"Sixty years is a long time," Meacher said.

"But we are *yirrija* and *dhawny*," he said.

"We are matched."

She hesitated. "And us?"

He just smiled.

The flowershops grew in Triton's sky, until at last their delicate filigree structure was visible, just, with the naked eye.

Nemoto called often, planning, urging.

Meacher said, "Ben, on some level Nemoto is right. There is a Prien convoy on the way here. We know they've taken Pluto apart, and we don't have any reason to suppose they won't do the same with Triton."

He smiled. "And then, the heart of the Solar System will be theirs!"

"I don't know. I don't care. That's for the future. I do know they're coming here."

"And so?"

"And so we have to do something about it. I think we have to make Triton — inhospitable — for them."

She had, she said, a plan. She described it to him.

"What you're proposing is barbaric," Roach said.

"It may be. It may be necessary, to save Triton for the Yolgnu."

"Save it by destroying it."

"Only if you see it like that."

"What about the native life?"

"We don't have any evidence of native life."

"Then what about ethics?"

"You think rocks, ice, have rights?"

"Perhaps they do," he said. "And you yourself have seen the beauty of Triton."

"... Yes," she said. "And I hate to wreck that."

"And further," he said. "Once Triton is changed, it is changed forever. Who knows what future, wiser generations might have made of these resources we expend so rapidly, so carelessly?"

"I know. But I think I agree with Nemoto. The Prien are on their way, maybe they are going to destroy Triton anyway, for their own purposes."

"We wreck it, or they do."

"Yes. Anyway, maybe we'll be able to make something else, of beauty. To reverse the evolution of Triton."

He considered. He said at length, "I will concede your plan has one positive outcome."

"What?"

"We are barely surviving here. The Yolgna. That much is obvious. Perhaps with what you intend —"

She nodded. "It will work, Ben."

He cupped her face. "Nemoto is right about one thing. You like to meddle, Madeleine. To improvise."

She shrugged. "I'm a hands-on kind of woman."

"But is this technically possible?"

She smiled. "It will need precise placement. But that's my job. I started out as a pilot, remember."

"You started out," he said sadly, "as a transporter of weapons. And you are still transporting weapons."

They argued for long hours, in the caverns of Kasyapa, on the surface.

At length, he agreed.

They thought it through further.

Roach would ask for the assignment of the colony's engineers to her project. And he would arrange for the evacuation of the colonists from Kasyapa, to the old transport ships still waiting in orbit. That wasn't going to be easy, actually. There were people here, even some middle-aged, who had been born after the emigration: born in the caverns of Kasyapa, with children of their own. To them, Meacher and Roach were intruders from the muddy pool at the heart of the Solar System, invaders from another time, who proposed to smash their world.

Roach would have a lot of persuading to do.

Meanwhile, Meacher returned to the *Gurrutu*.

Meacher could first see 21020A with her naked eyes when *Gurrutu* was ten days from its closest encounter, ninety days out from Triton, following its slow spiral in towards the orbit of the smaller moon.

21020A was one of the last of Neptune's twelve moons to be discovered. It was probably a captured asteroid, in fact. It swept around its parent on a wide, looping ellipse, its orbit actually crossing Triton's.

That made it ideal for Meacher's purpose.

At first it was barely more than a point of light — undistinguishable from the remote, fixed stars, had she not known where, precisely, to look. But by the day after that 21020A had grown to a distinct oval shape: almost like a potato, she thought irreverently, battered and irregular. She knew that from now on 21020A would grow visibly, day by day, and at last hour by hour, until at last its battered grey hide filled the viewing windows.

She navigated by eye, using a sextant, and by automatic star trackers, and with radio Doppler fixes on Kasyapa.

She got a number of direct calls from Nemoto, on Earth — or whatever Nemoto had become — which she did not accept.

She slept in her sleeping compartment, a box little larger than she was. Inside, however, tucked into her sleeping bag with the folding door drawn to, she felt comfortable and secure.

She missed Ben Roach, though.

*History
is not
timeless.
Things
change.
You're
traveling
between
worlds,
for God's
sake.*

She continued to debate the ethics of planetary engineering with Ben Roach.

"Here is another possibility," he said. "Beyond ethics, beyond this perceived conflict with the Prión."

"What?"

"You have used the metaphor of close satellite systems to describe the families and clans you have perceived here. Groups, orbiting together in neat circles about a common hearth, bound by the gravity of *Gurrutu*. It is a good metaphor. But you are excluded. Let me extend the metaphor. You are like Triton itself, a rogue retrograde body, come to smash our little systems. Perhaps this is why the plan is so appealing to you."

"Perhaps it is," she said drily. "You'll have to judge my psychology for yourself, Ben."

At last Meacher could no longer see Triton, Neptune or Sun.

On this, the hundredth day, the dark hide of 21020A slid past the small windows of *Gurrutu*. The spacecraft was in the shadow of 21020A now, and only the spotlights of *Gurrutu* illuminated the surface, the churned regolith pocked with ancient craters, less than a kilometer away.

She heard the clatter of solenoids, felt the judder of the craft as it was pushed by squirts of the automatic reaction control system.

She was beyond the useful reach of her optical navigation; now, the automatic systems of the spacecraft had come into their own — particularly the radar, which would determine *Gurrutu*'s distance from 21020A's surface precisely, to match it to the ground-based calculations based on her astronomical observations of 21020A's new path.

From now on, until the mission reached its conclusion, Meacher was a passenger.

She found the thought oddly restful.

For optimal yield, the warhead required precise emplacement. A standoff detonation was required, with the warhead placed forty per cent of the object's radius above the surface. There, the weapon could irradiate an optimal thirty per cent of the surface of 21020A.

The weapon had been engineered to maximize its production of neutrons, which would

be absorbed by the top few centimeters of the crust. The irradiated shell would heat, expand and spill away, thus imparting a rocket-like stress wave impulse to 21020A.

She didn't like countdowns.

A little before the moment of detonation, Meacher pressed her fists into the sockets of her eyes —

Beyond gold-tinted glass the colony of the Prión lay quietly beneath its translucent bubble, the beveled edges of the buildings making the little city look like a scattering of half-melted toys.

Beyond the bubble an airless, desolate plain stretched to a clean horizon. Shadows raked the plains.

Meacher traced the quasar's fantastic geometry.

"It's done," she said. "21020A is winding its way out to you now. It's going to take several of Triton's orbits to reach you."

Roach's image smiled out at her. "We'll be ready."

"Because Triton is retrograde, 21020A will come at you head-on. That will increase the incident velocity, and the energy of collision. It will be a low-angle, inelastic collision, pretty much parallel to the equator. A lot of torque."

"And Triton will spin. I know. We understand angular momentum, Madeleine. When are you coming home?"

"... I'm not," she said.

He frowned at her. "You are being foolish."

"No. Kasyapa is your home, and Marie's. Not mine."

"You are welcome here."

"Thank you. But it still isn't home."

"Then where? Earth?"

"I am decades out of my time," she said.

"Not there, either. Ben, *Gurruutu* is fuelled and supplied."

"You're going back to the Saddle Points. Which one?"

"I don't know. There are some the Priors won't take us through. They might be ... interesting. And there are a lot of mysteries to solve. Like, what happened to Reid Malenfant? What are the Priors really up to? And where can we find the Builders?"

He smiled at her. "Madeleine, I always knew I would lose you, to quasar light."

The powerhouse at the quasar's heart, barely two hundred light years away, was a pinpoint of unnatural brightness. Twin sprays of electron flux tore from the poles of the powerhouse, straining to zenith and nadir. And swaddling the waist of the quasar was a torus of glowing rubble; the colony world lay almost within the torus, so that the debris looked like a pair of celestial arms reaching around the powerhouse to touch the fake clouds nestling under the bubble.

It was glorious, astonishing ...

Pictures of the impact were broadcast, by the Kasyapa colonists, throughout the Solar System. Meacher, alone in *Gurruutu*, assembled the images into a single Virtual projection, a three-dimensional globe a meter across.

She looked, for the last time, at the ice surface of Triton, the subtle shadings of pink and white and brown. It did, she thought, look like a cantaloupe melon.

She had designed 21020A's trajectory so that it would not simply graze Triton, or punch through a short length of the ice mantle. She had steered the moon to come in at a steep angle, so that it would be forced to pass through ten times its own diameter before emerging from Triton's bulk.

Cameras on the surface of Triton showed the final minutes.

Triton's thin atmosphere barely impeded the hurtling moon. Nor indeed, at these speeds, would have Earth's.

A plume of fragments from the impact point was thrown hundreds of kilometers above the surface. A circular shock wave formed in the body of Triton, a wall of shattering ice kilometers high, like the rim of a crater — but this wall did not solidify, but passed on around the planet, churning up the nitrogen snows of the north, the ancient organic deposits of the south, destroying forever the poorly understood cantaloupe terrain, the rest of Triton's unsolved puzzles.

The splash walls, diminishing, did not cease their motion, but swept on around the curve of the moon, until they met in a clasp of shattered ice at the antipode of the impact.

In the churning fragments at the heart of the impact region, liquid water could already be seen.

Volatiles began to boil out of Triton's interior — nitrogen, carbon dioxide, methane, ammonia, water vapor — from cryovolcanoes kilometers wide. Soon, the moon was clad in a layer of thickening air, that

*She was
a billion
light
years
from
home,
everything
she had
known
buried in
the past.*

hid its broken, churning surface.

The kinetic energy of the impact, converted to heat, spread steadily out from the impact point in weakening shocks.

It had worked. Meacher smiled. In luck again, she thought.

When the process was done, Meacher knew, Triton would settle down to a new stability: spinning more rapidly than before, a new liquid ocean churning under a fat, thick atmosphere. There would be a greenhouse effect. And tidal drag from Neptune would keep the ocean liquid for centuries to come.

The *Yolguu* were celebrating. It was Triton Dreamtime, when giants shaped the land.

The quasar dipped to the horizon now; optical filters in the bubble skin softened its shape, turning it red. The electron flux was played across the sky like brush marks on velvet. She looked to the zenith; a scattering of galaxies glimmered through the bubble.

The sky was full of icosahedral frameworks, triangular faces glimmering, drifting like angular soap bubbles.

Virtual Nemoto materialized before her.

"You improvised well, Meacher. Triton is useless now to the Priors, who need solid ice and rock for their building programs. But it is far from useless to humans."

Meacher sighed. "The colonists of Kasyapa are going to have to rebuild their township."

"Of course. This will still be a cold world; perhaps a crust of ice will form under that blanket of thick, noxious air. So the colonists might become sea dwellers."

Meacher considered that Marie Roach tending her CELSS farm in the bowels of some immense submarine ...

Nemoto was saying, "And Earth life could inhabit the new ocean. Lightly modified anyhow. Deep sea creatures, able to live off the heat of Triton's churning core. There will be plankton, fish, even whales."

"Further out, there are other possibilities. Maybe we can float fusion lanterns in Neptune's thick hydrogen atmosphere, to shed light over Triton's new clouds. It will be beautiful, Meacher: blinding sparks against that dim blue disc. Perhaps, ultimately, the clouds can be driven away; Triton, here on the edge of interstel-

lar space, might even become Earthlike ..."

"You think big, Nemoto."

"Somebody has to, on our side."

Meacher shut off the Virtual projection.

Neptune and Triton were a pair of crescents now, the one cold blue, the other coated in rolling orange clouds.

Goodbye, she thought. Goodbye.

She was a billion light years from home.

Everything she had known buried a billion years in the past. And it would take another aeon if she chose to return.

Earth's biosphere could not survive so long as this. Man must have fled, or become extinct with his world. Perhaps she was the last human.

Perhaps she was, by now, a construct of alien genius; perhaps she wasn't even human any more herself.

Well, she didn't have to face that. Not yet.

The last traces of quasar light touched the sky like cool smoke. It was so beautiful it hurt.

Madeleine Meacher smiled. In luck again, she thought. □

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Gentry Lee pays a visit to *SF Age* for an exclusive tour of a virtual *Rama*.



ABOVE: Arthur C. Clarke in front of one of the winged inhabitants of Rama, his *Hard SF* brainchild.

BELOW: If you need help untangling the mysteries of Rama, Clarke himself will be there inside your PC to urge you on.

ARTHUR C. CLARKE'S *RAMA* IS ONE OF THE MOST fascinating and valuable pieces of real estate in science fiction history. *Restless with Rama*, Clarke's first novel after his huge success with the film *2001: A Space Odyssey*, told the tale of the visit to earth of a huge alien spaceship and its subsequent exploration by a team of astronauts. The book became an instant best seller and won every major award SF could give it: the Hugo, the Nebula, the John W. Campbell Memorial Award and the British Science Fiction Award. The uncharted expanse of Rama's interior was such a fruitful territory for exploration that it spawned two sequels, *Rama II* and *The Garden of Rama*, both written by Clarke in collaboration with Gentry Lee, screenwriter for Carl Sagan's *Cosmos* television series and former director of the science analysis and mission planning of NASA's Viking Mars mission.

"The books have been selling 50,000 copies a year for many years," said Lee. "It's very gratifying."

Lee has devoted the past few years of his life allied with the creative talent at Sierra On-Line to transform the *Rama* adventures into game form, and is hard at work finalizing *Rama* for its release in October of this year. Lee recently paid a visit to the *Science Fiction Age* offices to proudly and personally show off the pre-alpha version of the game, as well as to talk a bit about the work involved in transforming a classic work of SF from print to pixelated form. Unlike many another SF writer, he had a clear vision of the challenges of the task at hand.

"The first goal," said Lee, "having played enough computer games, and having read a little of the literature, was to make neither of the two classic mistakes. I call them Scylla and Carybdis, because I am a classicist by nature. On the one hand, some people have made games of famous novels that are too respectful of the book. Essentially, they're just a book report. They have not used the multimediality at all to expand on the world that exists in the book. There's no value added from the whole medium, and you get roughly the same experience if you just read the book. Well, you certainly wouldn't do that, you'd read the book instead."

"The other one is what I call, 'let me borrow this title and then just do whatever I want to.' And the two bear no resemblance to each other. So ideally, and I can't ever say whether or not we achieved it, but ideally, what I was striving for is this mythic word *interactive fiction*. The story and the game play are interdigitated in such a way that they all seem naturally to go together."

"I put on a different hat. I had to for the moment say, 'Forget that you wrote this book. How do you make a game out of that world that is engrossing and engaging, but retains the sense of excitement and wonder and beauty that's associated with that world?' And so when people ask me, 'Will the people who read all the *Rama* books have a tremendous advantage over people who won't?' My answer, and it's honest, is 'no.' They will appreciate what they're seeing more, but the game play, the puzzles and structure, they won't know any better than the game player who comes to it. On the other hand, the game player who has never had anything to do with the *Rama* world is in for some incredible surprises when they run into some of the characters, the boats and the aliens who are in there. But they'll get used to them after a while."

Because of the unusual nature of Lee's close working relationship with Sierra, we wondered how he came to the decision to be so personally involved in the translation of the classic works to a CD-ROM. Many print SF writers run screaming when asked to dabble in this new medium, but for Lee, it was a dream come true.

"I have seven sons," Lee told us. "I have been interested in computer games since they first started. The linkage to Sierra actually begins about thirteen years ago, when my oldest boy was six or seven. That was the first time I ever

played a game that had graphics in it, which was the *Wizard and the Princess*. And it was at that moment that I had one of those epiphanies that I've had at various moments in my life, and a little note went off saying, 'That's a career you haven't had yet, but you may want to have sometime in the future.' So I sort of stored that information."

"In '94, my agent told me that



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we were starting to get some inquiries from computer game people about the *Rama* series, and how did I want to structure all this? I said, well, I don't want to just let it go. In other words, I don't want to just sell somebody the rights, and let them do whatever they want to, because I think better things can be done than that. And I don't want to force myself on anybody. So, if somebody gets interested, then we'll start talking. I've always had respect for Sierra, number one. I loved Roberta's games, have forever, and they're vertically integrated. So we made a deal. They gave me the things I most wanted, one of which is an experienced, superb director, who is Mark Hood, who finished up *Phantasmagoria* and delivered it. I'm the kind of guy who wants to know the person who can finish it, and get it done.

"A book is more of a solo activity. But a computer game cannot be done by one person. It requires at least three very important elements. The finisher, that's what Mark Hood is, the guy who knows how all the elements go together. He knows how to map out the programming and the story and the art; he knows how to make those trades. And the artist, who has a vision that matches the vision of the designer, but far more palpable, far more real in terms of the real estate. Without any one of the three, you don't have a full product. You can almost pick up a product, and look at it for a short period of time, and know, this didn't have a finisher, this didn't have a designer, or whatever it was. So we worked together.

"I remember a conversation I had with Arthur. He said, 'Do you really want to design a computer game?' And I said, 'yeah, I'd like to.' In the same sense that I wanted to write a novel after I'd been building space craft. I think there's some value added to be brought to this. I think this is the medium of the future, that's the key. A lot of people don't read anymore. And the wonders of *Rama* can be packaged in a way that's engaging and accessible to them. We'll see. Ken Williams told me that I am the only science fiction writer whose work has been transformed under his or her own direction, so to speak.

"Now don't misunderstand me. I didn't tell everybody what to do. I could not possibly have done it without these other guys. But I've been there working on it on daily basis throughout the whole time. So when Richard Hescoc would say, 'Is this what an octospider looks like?' I could



ABOVE: Ray Taka is a fellow crew member who will help you explore the cavernous spaceship
BELOW: To communicate with some aliens, you'll need to learn to speak with colors. BOTTOM:
Artist Richard Hescoc has brought to life the myriad beings from the minds of Clarke and Lee.

say, 'No, its not quite right, but it's close. You got to get the colorbands a little different like this,' and so forth.

"And some of these things were funny. When we started casting for the parts, our producer, who is a very, very good producer but doesn't quite understand how you put fiction together, kept bringing me tapes of people. And I kept saying, 'No, that's not her. That's not her. That's not her.' And finally she stopped me and said, 'Well, how do you know what these people look like?' And I said, 'They've been in my head for five years. I know who they are.'

Lee's descriptions of the game's narrative structure captured the essential sense of



wonder that is so important in SF, the main reason the novel series has proven so popular. Both novice and advanced gamers will find it easy to adapt to the structure of the game.

"One of the great things about Rama is that the back story can be encapsulated very, very quickly. A giant cylindrical spacecraft the size of Los Angeles county or so suddenly appears in our solar system from the deepest reaches of outer space. Humanity knows at that instant there exists, or there existed at some previous epoch, intelligence that far surpassed ours. What is it doing here? We send a delegation of a dozen human beings up to find out what it's all about, with a simple mission — go inside. Explore. Find out who made this thing. Why are they here? Where did they come from? Cut. That's it."

Things alien were much in our thoughts that day at the offices of *Science Fiction Age*, as the film *Independence Day* had recently been released and was on the road to setting numerous box office records. We prodded Lee for his feelings about this fascination with life on other planets. Did he think our first contact with alien life would mirror that of the hit movie?

"First of all, the entire concept of the giant ships sitting over the city is *Childhood's End*. I'm amazed that they didn't have to pay Arthur something for rights, because *Childhood's End* started with all these spaceships sitting over the major cities of earth. But, the movie has pluses and minuses about it. The basic thesis of the movie, that aliens would that aggressively come to the Earth to do something like that is so far beyond what I believe could possibly be true.

"It's very simple to explain why. First of all, if they are that much more advanced than we are, then they have known about our existence for a long period of time. And they would have figured out far more subtle ways to end our brief skein here on this planet. It is far more likely, if you really want to get into

a deep philosophical study of this, that any aliens that are really far advanced have gone through the cusp, and thrown off their territoriality and aggression, and they don't have anything to do with us simply because they're afraid that we will foul up them, rather than the other way around.

"I had this long discussion with my second son, the philosopher. I'd been sitting out there hoping and waiting, looking at the Milky Way galaxy spread out over our heads, asking, 'Where are they? Why aren't they here if there are so many of them?' And you know, we'd have these arguments or discussions about, well, maybe they don't pay enough attention to us like we don't pay attention to the ants. The ants have a very complicated chemical communication language, you would think that we would pay more attention to them, but we don't for whatever reason. Or they don't want to get involved with us because they're afraid they're going to foul up our history. And they're trying to see what we're all about. Or far more likely, they'll look down at a species that spends 25% of its Gross World Product on arms, and is ruining its habitat at such an alarmingly fast rate, that they say, statistics say that this species is not going to last too long anyway, so why invest the effort?

"And if you look at it historically, if you really look at sci-fi and aliens all the way from the beginning, the pendulum swings back and forth. They always began as terrible. They were going to do things to us. Then you had this big paradigm shift. It started with *Close Encounters of the Third Kind*. You had the feeling that the Pillsbury Doughboy might be okay. Maybe you'd want to go up on that ship, that things would be fine. And then Steven Spielberg went a little bit further with *E.T.* Oh, my gosh, they're cute, they can heal us, all they want to do is go home, they're more advanced than we are. And for awhile there the idea was well, great, we live in a terrible world, we're crapping in our mess kit, we've got nuclear war to worry about, and maybe, maybe, our salvation is out there somehow, the aliens are going to come down and say everything's all right.

"And if you look, as a matter of fact, at all the alien abductions — now I want to take a position here, I'm not saying they have or have not occurred — but if you look at what that's all about, these abductions end up with the abductees talking reverently about these creatures. Yes, they were scared to death, but they're more aware of ecology, and they're more aware of the need to love our fellow man, and so forth. And I think we really have right now a blending of normal religion and a hope for alien interference."

RAMA uses state-of-the-art full-motion video, an original soundtrack, the beautifully rendered art of Richard Hescox, and exquisite character animations, but one of its most fascinating details was the game structure.

"One reporter I talked to said, 'This is not like most shoot 'em up games is it?' And I told him no, it's sort of inverted. The winner here

is the person who gets along well and figures out how to save people.

"I want them to think about things that they may not have thought of before, such as how would an extraterrestrial view us, if we were to wander around in *their* neighborhood? What's proper behavior if you meet some creature you've never run into before? If I may borrow something from Carl Sagan, the brain has three layers: the reptilian brain, at the center, the primate brain on top, and on top of that is ours, what is uniquely human. Territoriality and aggression is pure reptilian, since evolution never threw away the things that didn't work. At core, if we don't think, we are reptilian. We protect our territory. We pee on it to make sure everyone knows it's ours. And what *Independence Day* is about is the flight or flight reptilian mechanism responding. That's why I think it's good from the point of view that it's going to make a better market for our products and all that sort of stuff.

"But it's bad in that I think it conveys the wrong attitude about what you do when someone new moves into your village. You don't get out your machine gun and start blasting them."

Players will also find a special treat waiting for them inside their PC: Arthur C. Clarke himself.

"Arthur is in the game. Whenever you die, which is not too often, instead of it being a downer, you go to a place and meet Arthur, and Arthur gives you clues and encouragement on how to play. So a lot of people are going to want to die so they can go see Arthur."

After letting us explore the world of Rama and its wonders on our own, Gentry Lee was on his way, his mind on real explorations, rather than science-fictional ones. His visit to the Washington, D.C., area killed two space birds with one stone. What was the other goal that brought him here?

"Viking's twentieth anniversary," he said wistfully. "There's a huge Mars symposium. Those of us who were fortunate enough to have been responsible for that mission are sitting down for a gala dinner and reminiscing about the days when NASA was at its peak, and the best and brightest were working at NASA, and that remarkable experience, which was unlike anything in my life, sitting there waiting for the first pictures to come from the surface of Mars. It was twenty years ago tomorrow. Not one human implement has touched the planet Mars since then. Just imagine that. It's as if Visco di Gama had gone off and found the Dutch East Indies, and twenty years later nobody had been back. It says an awful lot about the United States, about space exploration, and about the will of the human spirit."

Gentry Lee walked off, and we thought how fitting it was that the man who helped give us a real Mars had now given us a virtual *RAMA*. Readers of those classic books have always wanted to crawl inside of them. Now, at last, they truly can. □

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January 1993—Fiction by Ditch, McEl-Earn, Suckler/Trotter, Landis/Grunwald, Cross, Daniel. Essay by Martin Shimmer. Gallery—James Gunn—Distracted.

March 1993—Fiction by Ellison, Andrews, Dora, Aldridge. Flash Essay by Horton Ellison.

May 1993—Fiction by Midberg, Tilly, Van, Steele, Aronson. Essay by Robert Silverberg. Gallery—Barbore.

July 1993—Fiction by Peter Anthony, Sheffield, Shelley, Hagan, Bissan. Jurassic Park. Gallery of Joe Harris.

March 1994—Fiction by Parks, Tredemann, Peoples, Nukleofunk, Lutz, Gurnett.

May 1994—Fiction by Bradford, Di Filippo, Muenrow, Aldridge, O'Neill, Sammons, Gallery of Bob Eggleston art.

July 1994—Fiction by Landis, Rich, Wilber, Mulderport, Shelby. Travel. Gary Castele. Essay by David Stein.

September 1994—Fiction by Marace, Swank, Wilson, Nelson, Shenkin, Landis, Castro. Essay by Frederic Feld.

November 94—Fiction by Resnick, DeChant, Perry, Chazy, Moss, Nelson. Best Gallery by Horton Ellison.

January 95—Fiction by Castro, Evans, Steele, Wood, Harrison, Cayton. Gallery by Mike Rosen.

March 95—Fiction by Wilber, Subramanian, Aldridge, Rich, Jeffrey Carter.

May 95—Fiction by O'Flaherty, Ben Davis, Rich Chazy, Brinkley, Chayton.

July 95—Fiction by Tredemann, Peckey, Madgen, Magan, Maffioletti, Boston, Radcliffe.

Sept 95—Fiction by Soukup, O'Flaherty, Watkins, Boston, Reed, Parks.

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SCIENCE

Continued from page 36

crime by consensus, there's no need for laws. Essentially, you're wishing the problem away. So what happens when they meet up with other people equally free of "sin," but with different cultural norms?

ANDREWS: I did write an unsold story, "Cry, Uncle!" in the early 1980s, in which libertarian ideals and practices have swept away the governments of all Earth, except for the United States. The corporate partnerships remaining give the elected US government the opportunity to give up or dissolve, or to remain as they are, but having to stay in D.C. forever, an example of how absurd the past used to be. So, you have Senators and Presidents passing laws that no one listens to, running up deficits and declaring wars that are not relevant outside the force field that keeps them in their zoo.

LANDIS: Tawn. The usual libertarian claptrap. People are more complex than that.

ANDREWS: Jefferson was not complex enough? It seems to have worked OK for Eastern Europe. I didn't see Czech crowds quoting Jimmy Carter or George McGovern when they were kicking out the old Reds.

LANDIS: This is the usual libertarian argument: everybody who doesn't see things any way is a Stalinist! If you don't like libertarianism, you must like Russian socialism, right?

ANDREWS: Geoff, so far, the only rebuttals I've seen are words like "Babony" and "claptrap." Are you a delegate to the Democratic convention?

SF AGE: I keep hoping to hear of that alien political system. What will the aliens have as a political system once we find them? I think all I'm hearing are evolved in straight lines from the here and now.

ANDREWS: Truly advanced aliens will laugh (if they can, and if they do so) at our political systems. How could the world, for example, ever tolerate dictatorships or tribes, or even Democrats? Seriously, advanced civilizations will have worked out ways that we probably couldn't recognize, though we were told. To paraphrase Haldane: "Alien politics is not only weirder than we imagine, it is weirder than we can imagine." (Although that might have been said about New Mexico politics.)

LANDIS: He used the word "queerer," but we don't use that word any more.

ANDREWS: I said it was paraphrased. (Being PC, doncha know.)

LANDIS: Actually, I quite dislike almost all of the political agendas. Conservatives, liberals, libertarians — all of them say almost exactly the same thing: I've already made up my mind; I don't intend to think any more. None of the philosophies seem capable of examining a problem and actually trying to solve it in and of itself.

ANDREWS: Geoff, your problem, and mine, is that we both are techno-geeks. We implicitly believe that problems are amenable

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to solution. But in human relations, our kind is very often wrong. As one who has served (hell, made money!) in both politics and technology, my observation is that technology is the art of the impossible, while politics simply sucks.

LANDIS: An alternate political system, perhaps, might be one which is the opposite of our existing ideal that everybody be allowed to vote. There could be a political system in which it is made deliberately very difficult to vote. Voting would be an ordeal, a test of valor, or of will.

ANDREWS: Such as having to own land, as was proposed in drafts of the Constitution?

LANDIS: Nah, anybody can own land.

ANDREWS: Ah, *Starship Troopers*, in which only veterans could vote!

LANDIS: Walk a tightrope across a chasm, climb a mountain on a unicycle with your arms tied behind your back, whatever. Possibly a wide variety of different tests of valor, so that no one simple skill would dominate. This would turn into a system in which the voters are people who really seriously want to vote. Perhaps one in which only the real extremists vote....

ANDREWS: The movie, *Rapa-Nui*, had such a test of valor for those who would serve as leaders — swim to an island a mile or two away, steal a bird's egg, swim back, and climb a cliff. Worked for them. Of course, your reward as chief was that you got to go to heaven on the next iceberg that floated by. Sounds as rational as some things that have been tried here. Like the Berkeley City Council, for example.

SF AGE: What areas have we left out, those areas you assumed we'd be talking about, but didn't?

ANDREWS: Technology's effects on politics (other than the Web)? Politics in space colonies? My idealized life in an O'Neill colony tinned faded when I realized that it would be populated by technoYuppies, and that I would have to pay for their bagels and gyms and childcare. I will repeat my heresy: by the time the global community is homogeneous enough to want to have a system of government, there will be no need for it. Politicians will become as irrelevant as elected religious leaders. Contemporary politics will one day be as useless as the machinations of individual Byzantines when the Moslems were battering down their walls: interesting enough, but hardly worthy of anyone's priority.

LANDIS: So, like Karl Marx, you believe that the state will wither away by itself? I doubt that Arian's dream will come to pass. When people have different goals and different beliefs in what is right, there will always be friction. Laws are needed to make decisions about who has the right to make decisions. Arian's dream world only works if people never disagree, and, in my opinion, a world in which people never disagree is boring.

ANDREWS: But, Geoff, one's reach should exceed one's grasp, or what is SF for? □

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BOOKS

Continued from page 16

from the effects of violent death, cryonic preservation, and subsequent revival and rehabilitation, which would put a crimp in most anyone's year. As we find out in *Memory*, the permanent consequence is unpredictable epileptic seizures brought on by stress — and stress is inescapable in Miles's double life.

The character, to say the least, does not react well or wisely to this. Miles has had more than his share of physical challenges, with his bones brittle from prenatal exposure to mutagenic chemicals. He's had to deal with a society that looks down on infirmity as evidence of deviant mutation, with physical limitations and injuries; with surgeries to reinforce or replace his bones with medical plastics, all while keeping his double life straight as an Intelligence officer in the Barragaran military and as Admiral of the Dendarii Mercenary Fleet. Now he deals with his seizures the way he's dealt with past challenges — minimize the problem, figure out ways around it, ignore it, hide as much of it as he can.

In short, he does what any person in real life would do — he screws up, big time. As we find out in this book, it's going to cost him darn near everything he's worked for. But it's a left-handed gift from the gods (or the author) because for Miles, it's past time to grow up. Much of his life is adolescent wish-fulfillment, which was fine back when Miles was seventeen, but now he's turning thirty! Throughout this series Miles has continued to mature, and for him, a birthday milestone like *thirty* means the same as it might to any reader. It's high time to look back and look forward, to rue choices and learn from mistakes.

The title, *Memory*, refers to more than just the sub-plot concerning the memory chip in Simon Illyan's head; it's also about how memory, identity and tradition enrich and restrict. Miles not only has to deal with crises arising from his self-caused screw-up, but with changes in those around him, from Emperor Gregor down to casual childhood pals. Life has gone on, not frozen by adolescent desires. The sad truth is that sometimes life's ambitions have to be reevaluated — or even abandoned. This is not the ambiguous message that the fourteen-year-old wants to read, but what the essence of the Golden Age of SF leads to.

In a larger sense, the Vorkosigan series also reflects the changes Barragar is going through, as it comes out of its time of isolation as a lost colony trying to hang onto tradition as it adapts to new technologies, and new ways. If it's the Vorkosigan family's fate to be midwives to the new Barragar, that gives this series some of its beyond-fourteen-omph.

Characters are not merely well-drawn by Bajard, they change in realistic ways. They



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have their angst, and drama, and adventure — and oh, did I mention angst? — all the things that the fourteen-year-old in every reader craves. But Bujold offers more than just the cheeseburger of gosh-wow and gee-whiz. Which is why these books — and I predict this book in particular — earn their awards.

Connie Hirsch

RECENT AND RECOMMENDED

Reading Michael J. Weldon's addictive *The Psychotronic Video Guide* (Griffin, trade paperback, 672 pages, \$27.50), I realized that I was familiar with far too many of the Grade Z SF and horror flicks listed. That either says very good things about this over-sized guide to all things cheesy, or else very bad things about my choice of entertainment during my formative movie-going youth — but I'd prefer to lean towards the former. Weldon has gone all the way back to the turn of the century to find those guilty pleasures that have been given a second life on home video. More than 9,000 films are covered here, from "quality" cult films such as *The Adventures of Buckaroo Banzai Across the Eighth Dimension* to trashy classics like *Orson's Attack of the Redneck Mutants* and *Devil Girl from Mars*. Weldon has devoted his life watching each of these films so you wouldn't have to, first as the founder of *Psychotronic Video* magazine, and later as editor of *The Psychotronic Encyclopedia of Film*, a 1992 bestseller. The fascinating and exhaustive volume includes more than 450 black and white illustrations, and has been blessed by the likes of Quentin Tarantino, John Waters and Clive Barker. Weldon's treasure trove comes highly recommended. Buy it, but be careful — each time I picked it up thinking I'd skim it for just a few minutes, another couple of hours were lost to entertaining nostalgia.

Memory is fleeting, especially in science fiction. Perhaps so many of us fail to look back because we are so intent on gazing forward. This would explain why certain names are slowly being forgotten. Of SF Grandmaster Clifford D. Simak, Robert A. Heinlein once wrote, "To read science fiction is to read Simak. A reader who does not like Simak stories does not like science fiction at all." Thankfully, the small press is hard at work, keeping lit the flames for those who are no longer with us to do it themselves. *Over the Rider & Through the Woods: The Best Short Fiction of Clifford D. Simak* (Tachyon Publications, limited hardcover edition, 218 pages \$25.00) collects eight of the author's bucolic SF tales. Included is *The Grotto of the Dancing Deer*, which won Simak both the Hugo and Nebula Awards, and proved that skill need not pass with age. Simak published SF almost continuously from 1931 until his death in 1988. This volume gathers stories from the second half of Simak's lengthy career, and provides a fitting monument for a life well-lived. Paul Anderson provides a moving introduction to this much-needed volume. □

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CONTRIBUTORS

STORM CONSTANTINE EXPLODED ON the SF scene with her immensely popular *Wrathful* trilogy, set on a post-holocaust Earth, which includes the titles *The Enchantments of Flesh and Spirit*, *The Bewitchments of Love and Hate*, and *The Fulfillments of Fate and Desire*. Other novels from this British writer include *Burying the Shadow* and *Calenture*. **Martha Soukup** was the winner of a Nebula Award from the Science Fiction Writers of America for Best Short Story for "A Defense of the Social Contracts," which appeared in our September 1993 issue. Her most recent fiction appearances have been in the anthologies *A Starfarer's Dozen* and *Off Limits: Tales of Alien Sex*. A short story collection of her best fiction to date, as yet untitled, will appear from at the beginning of next year from Dreamhaven Press.

Maureen F. McHugh is a multiple Hugo and Nebula award nominee. She lives in beautiful, scenic Twinsburg, Ohio with a husband who is a toy engineer, a son who is a King Fu fanatic, and a Golden Retriever named Smith. Her novel *China Mountain Zhang* won both the Tiptree Award and the *Locus* Award for best first novel. Mark W. Tiedemann has had short stories published in numerous SF magazines, as well as anthologies such as the Kevin Anderson-edited *War of the Worlds* anthology. He lives in his hometown of St. Louis, Missouri, where he writes plays for the St. Louis Theatre Radio Group.

Dan Perez recently edited *Sci-Fi Flick*, a Sovereign Media publication celebrating the 30th anniversary of *Star Trek*. His short stories have appeared in the anthologies *100 Vicious Little Vampires*, *Xanadu 3* and *100 Wicked Little Witches* as well as magazines such as *Cemetery Dance*. His media reports have appeared in these pages as well as those of *Realms of Fantasy* and *Sci-Fi Entertainment*. **Cory Doctorow** is a graduate of the Clarion Science Fiction Writing Workshop who has seen his fiction published in the magazines *On Spec* and *Pulphouse* and the anthology *Air Fish*. Lately, he has parlayed his computer expertise into a role as producer of the CD-ROM adaptation of the sadly defunct *Prisoners of Gravity* TV show.

Stephen Baxter has been receiving sig-

nificant praise for his recent work. His short story "Gossamer," originally seen in these pages, was voted the second most popular story of 1995 by readers of *Locus*. Arthur C. Clarke called his novel *The Time Ships*, "the most outstanding work of imaginative fiction since Stapledon's *Last and First Men* and the best possible contribution to *The Time Machine*'s centennial year." His other novels include *Raft*, *Anti-Ice* and *Flux*. He lives in Buckinghamshire, England with his wife Sandra. **John Berkey** hopes that you pause during your next stop-over at the Pittsburgh Air Terminal. That's because his twelve-by-six foot mural of a city of the future is hanging there to help you pass the time waiting for your next flight. His most recent collection of artwork is *Painted Space*.



Mark W. Tiedemann



Martha Soukup

CHARLES SHEFFIELD HAS BUILT A career based on presenting Hard SF with a social conscience. His novella "Georgia on my Mind" was a Nebula Award winner. His novels include *Proteus Unbound* and *Brother to Dragons*. He has been a frequently and lively participant in our Science Forums. **W. Gregory Stewart** has won the Rhysling Award for his poetry, and has been a Nebula Award nominee.

Connie Hirsch was recently published in the anthology *100 Vicious Little Vampires*, as well as the Katherine Kerr-edited *The Shimmering Door*. **Janet Aulisio**, in addition to her commissioned work for most of the SF field's major magazines, is hard at work on a more personal series of painting which she hopes to soon begin exhibiting at conventions around the country. Her recent published work includes paintings for the games *Shadowrun* and *Earthdawn* for the FASA Corp. **Rick Berry** was the Artist Guest of Honor at last year's World Fantasy Convention held in Baltimore, Maryland.

Geoffrey Mann was first exposed to science fiction while working for the Peace Corps in Thailand, where he found a box of classic Asimov and Heinlein novels left behind by a departing volunteer. **Barclay Shaw** has received three Hugo nominations for his artwork. The recent retrospective volume of his art is titled *Electric Dreams*.



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